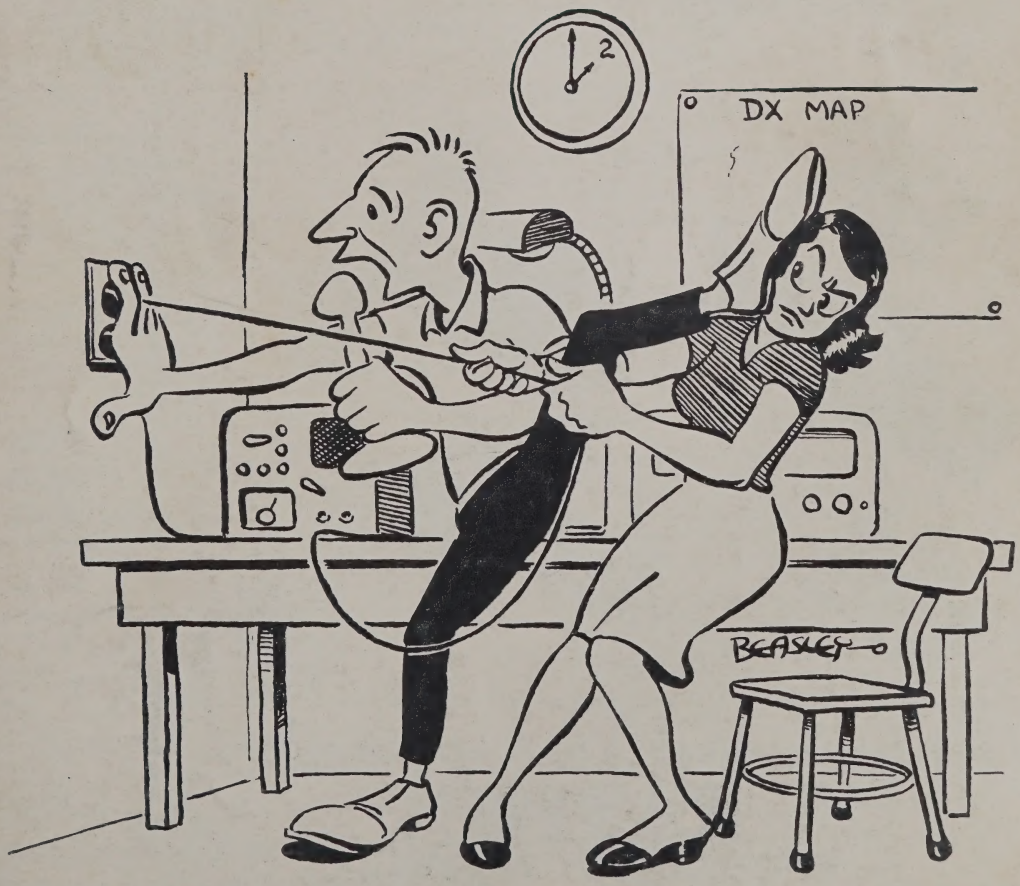
Western RADIO Amateur

JUNE 30, 1959

25c



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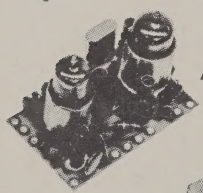

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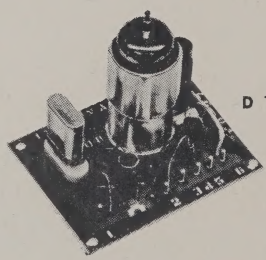
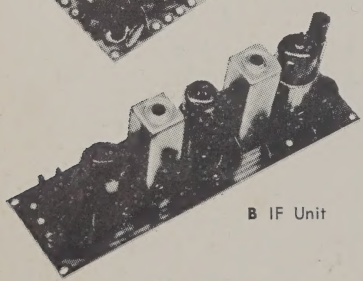
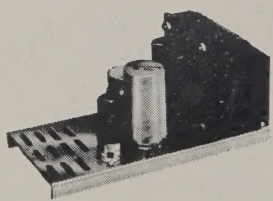


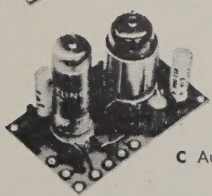
D Transmitter Unit



B IF Unit



E Power Supply



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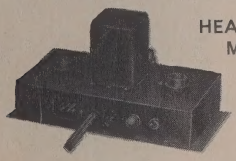

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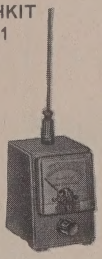

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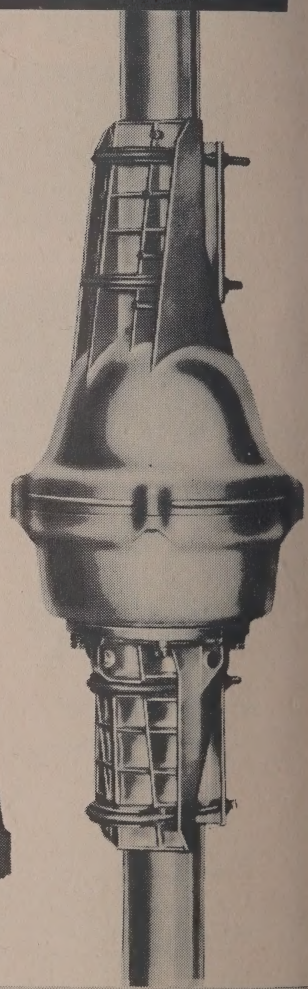

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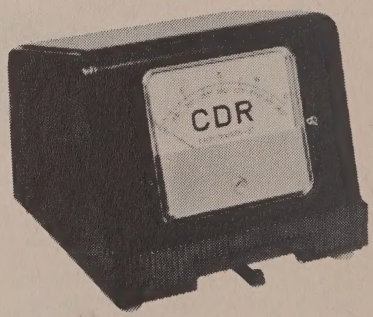

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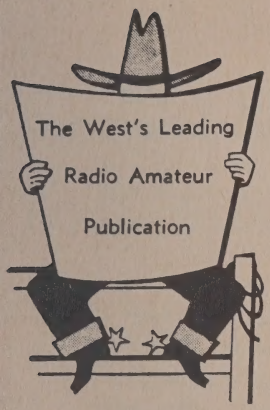

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PASADENA HOSTS 6,000 HAMS

The City of Roses, Pasadena, California, will be the mecca of more than 6,000 hams when the 1959 Southwestern Division of ARRL holds their annual convention on July 24, 25 and 26. Sponsored jointly by the Ramona Radio Club and San Gabriel Valley Radio Club, it promises to provide all attending, a most unusual experience.

Most of the activity during these three days will center around the headquarters at the Huntington/Sheraton Hotel where clinics, seminars and formal lectures will prevail. Such interesting speakers as Dr. Henry L. Richter, Jr. of Jet Propulsion Laboratories; Walter Larkin of JPL's Goldstone Tracking Station; Merrill Swan, Editor of RTTY Journal and Andrew Andros, President of Hy-Gain Antennas will be among the celebrities in attendance.

In addition, exhibits of interest to the neophyte ham as well as the "old timer" will be displayed. Want to know how a satellite is tracked? You can get the answer during the convention. On the agenda several tours have been planned, including trips to Burroughs Electrodynamics Corp., Consolidated Electrodynamics, the Microlock Satellite Tracking Station in Temple City and for the cultural minded ham, a tour through the world famous Huntington Library and the Arboretum.

On the technical side, several stations will hit the air direct from the Huntington, and to whet the appetite of the amateur seeking to improve his gear, some of the latest and newest equipment available will be displayed. Of interest to many seeking to take their Code and Theory exams, an F.C.C. Examiner will be present to give the necessary tests to all applicants.

For the ladies in attendance, not only are informal events planned, but the highlight of the convention will be a display of the genuine and official Miss Universe, Miss U.S.A. and Miss America Crowns, valued at over $3,000,000.

A full schedule of events is planned for these three days culminating on Sunday with a dinner to be held at the Civic Auditorium in Pasadena. For the more fortunate, a great array of prizes consisting of radio equipment and components has been donated by interested manufacturers, to make this 1959 Convention the best ever.

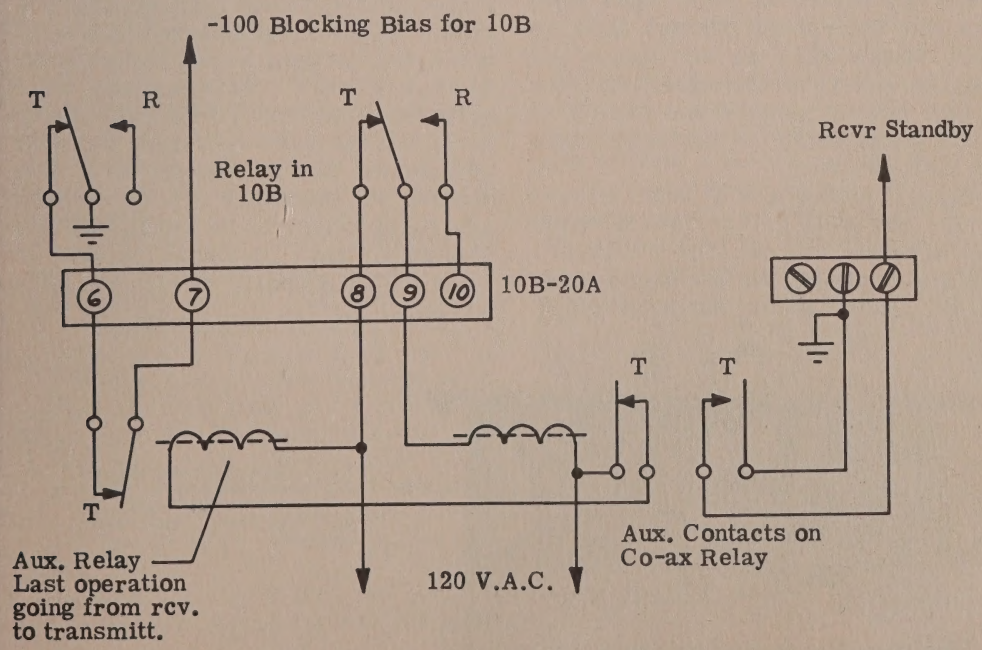
PLAN ON ATTENDING THE 1959 ARRL CONVENTION,
SOUTHWESTERN DIVISION —— PASADENA, CALIFORNIA
JULY 24 - 25 and 26. ALL HAMS ARE INVITED.

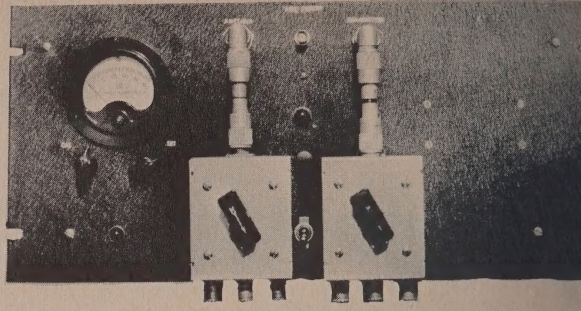
Antenna Switching for SSB Transmitters

Ed Marriner W6BLZ
528 Colima LaJolla, Calif.

The arm of an antenna relay should be connected to the antenna before power is applied. How many are? Have you stopped to think that during the travel time of the relay arm your amplifier does not have a load on it? When the contact hits the antenna contact it makes a big flash and perhaps sometimes it blows the fuse. Some Co-ax type relays have auxiliary contacts operating from the armature to be used for bias removal on the transmitter. Don't take it for granted that these auxiliary contacts make contack after the antenna arm - inspect your relay. I have found most of the auxiliary contacts on the relays I have examined make contact before the antenna arm and thus the arm is hot when it hits.

Many readers have written to me asking how this problem could be solved. The only way I can suggest, besides re-designing the relay, is to add another relay. Fortunately there is no drive to a linear amplifier until the blocking bias is removed on the exciter and it will remain stable without the antenna connected. This is a good start. If the blocking bias can be delayed until the antenna arm is closed, we're in business.





Front view showing the homemade coax switches made from three position rotary switches mounted in LMB boxes.

Fig. 1 shows one method this can be accomplished. The auxiliary contacts on the co-ax relay are used to operate another relay which in turn removes the bias on the exciter. We are able to do this because the terminals 8-9 on the 10b exciter can be used to break 120vac to the co-ax relay. The auxiliary contacts start to close and in turn add 120vac to the auxiliary relay which will remove this bias on the 10b. Now as the antenna arm in the co-ax relay is already in motion and the relay operated from the auxiliary contacts has to start from a dead stop, the antenna arm contact will be closed before the auxiliary relay is closed. This is only a small delay but is enough to prevent arcing of the antenna contacts.

Please note at this point the power for the co-ax relay must come from the main power control line so that there will be no danger of pumping r-f into the receiver. The relay power should be wired in place permanently to the main transmitter switch.

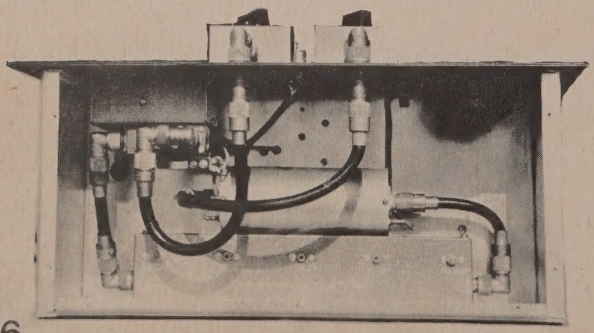
Fig. 2 shows how I mounted the relay, low pass filter, ratio meter and antenna transmitter switches. The spare set of auxiliary contacts on the co-ax relay can be used to turn on and off the receiver.

At my own station I have further integrated this system with my CW transmitter by running terminals 8 and 9 over to relays in the CW transmitter which is separate.

I would be interested if others have found another solution to this problem without bending the contacts on the 10b, or using a TR switch. The principle disadvantage in the TR switch I have found is that there are dead spots on the receiver dial because of the transmitter tank circuit sucking out r-f. If a pre-amp is used with the TR switch you have to retune for each band when listening to the receiver.

There is some interaction and power loss when attaching a TR switch to the co-ax feed line. It is possible to put the TR at the plate of the final tube to prevent these difficulties, but then it could not be used with other transmitter finals. This is the only solution that has worked in a practical manner for me because I could not delay the action of the bias removal on terminals 6-7 by bending the relay contacts to terminals 8-9 enough to make it close the co-ax relay far enough ahead to stop arcing.

****



Top view showing mounting of low pass filter, ratio meter and coax relay. Auxiliary relay under chassis.

Collins Equipment Tracks Moon

For the first time in history, the moon has been tracked continuously by radio through the use of a new precision radio sextant designed and constructed by Collins Radio Company.

Dr. David McCoy, Assistant Director of Research and Development at Collins, disclosed that the company at its Feather Ridge Observatory near Cedar Rapids, Iowa, has been tracking the moon since late in the summer of 1958. Much of the project is still under security wraps.

Praising the work of the men who developed the new sextant, Dr. McCoy stated that the work has been performed by a Collins scientific team under the direction of Dr. Gene Marner, head of the Company's Radio Astronomy Group, with Ted Willis as Project Engineer. He said that many major advances in both the electronic and mechanical arts were required for successful completion of the project.

The new radio sextant has been delivered and installed aboard the Navy's experimental navigation ship, the USS Compass Island, where the new sextant is being used in navigation research.

Since the moon gives off extremely weak radio waves, the feat of developing a sextant to track the moon accurately is a "major breakthrough in navigational systems," Dr. Marner said.

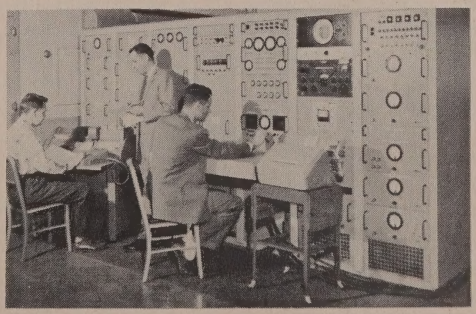
Collins' new sextant also tracks the sun with high precision. Solar tracking is difficult because the radiation from the sun is extremely weak and "noisy". The moon is even more difficult to track since its radiation is about 50 times weaker than the sun's. The total lunar power available to the sextant must be multiplied by 500,000 billion to equal that used by a small Christmas tree light. In order to track accurately, the receiver must distinguish power changes which are a minute fraction of the total power received.

According to Dr. Marner, the new sextant is capable of tracking both the moon and sun under all weather conditions from moonrise to moonset and from sunrise to sunset. It can track the moon and sun precisely under four weather conditions. In addition, the radio sextant functions as a precise compass, furnishing the direction of north with more than 10 times the accuracy of present marine compasses.

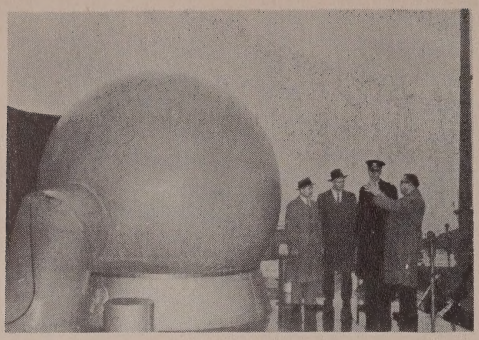
The radio sextant, designated AN/SRN-4, was developed under a research and development contract with the Navy's Bureau of Ships with funding and technical supervision provided by Special Projects Office, Bureau of Ordnance. The first contract called for the design and construction of two sextants. One sextant has been installed aboard the USS Compass Island under the contract, and the other has been installed at Collins Feather Ridge Observatory for further experimentation.

Recently, Collins received a second contract for the design, construction and installation of another SRN-4 for the USS Long Beach, which is under construction.

Collins research in several technical areas was necessary to attain the required precision for the sextant, which utilizes a 5-foot parabolic type antenna. The most sensitive radio receiver ever built for the measurement of thermal radiation in the short microwave region was developed. This receiver, which operates at a wave length of 1.8 centimeters, allows the determination of the



Collins Engineers check data from new sextant control console.



Collins Sextant Radome aboard the USS Compass Island

antenna position with the necessary preciscion.

Collins also developed a new tracking system involving advanced servo techniques with many unique features. A special remote angle read-out system, which can punch its data directly on cards with great precision, is utilized. It is also possible to control and check all phases of operation from a remote control console. From a mechanical standpoint, machining processes with tolerances as small as 25 millionths of an inch were required, and new procedures for optical aligment were worked out by Collins. In order to provide the necessary mechanical precision, an air conditioning and heating system is used to maintain the equipment at a constant temperature at all times.

The Norden Division of the United Aircraft Corporation, White Plains, N.Y., under subcontract to Collins, supplied the specially developed stabilization system to remove the effects of the ships pitch and roll. The uniquely designed air-supported radome which protects the equipment from wind and temperature changes was developed by Collins and BirdAir Structures, Inc., Buffalo, N. Y.

Aboard the USS Campass Island, radio sextant observational date are coupled with the vessel's precision time standard and presented directly to a navigational computer, which combines celestial and inertial data to determine the ship's location and true north.

The SRN-4 could be utilized in many ways. Two or more ships could rendezvous at any point with complete radar and radio silence. By using the SRN-4, station keeping or approach to fog-bound ports would be made easier. Radar picket vessels would know their exact position and would be able to pinpoint enemy vessels or aircraft coming in for an attack. The vessels in task forces and convoys could disperse, yet still maintain knowledge of each other's position, and missiles could be directed to a given geographical position.

In discussing possible application of the SRN-4, Dr. Marner said:

"We have entered into an era in which most defensive and offensive tactics must be conducted with reference to a precise knowelledge of actual latitude and longitude as well as the direction of north. It is now evident that these quantities must be known continuously under all conditions. The precision radio sextant opens the door for the development of new naval tactics."

Commercial possibilities of the new Collins sextant are considerable. Ship navigation today makes use of the hand-held optical sextant to shoot the stars, usually at dawn and dusk. This was and still is a highly accurate method of navigation; however, the hand-held optical sextant depends on a clear sky. The SRN-4, regardless of weather, determines the moon and sun's position automatically and continuously through the reception of the microwave energy emitted from those heavenly bodies.

For several years, Collins has ben the only company in the world to maintain an active radio astronomy observatory.

A Bell Laboratories engineer, Karl Jansky, first picked up radio waves from space in 1931, but search for sun radio radio waves was unsuccessful for many years. British radars accidentally picked up some of these waves from a sun spot in 1942, but this information was held back at the time because of security reasons. Detection of radio radiation from the sun was announced independently by two other American scientists—by Grote Reber in late 1944 and G. C. Southworth in early 1945. Collins began research in radio astronomy the next year. From this work evolved the first

Continued on page 33

Collins project engineer Ted Willis discusses features of the AN SRN-4 Radio Sextant with Capt John H. Brandt. Commanding Officer of the USS Compass Island. standing next to Willis, and Lt.John W. Kuncas. (Navy photo)

San Diego Zero Beat

E. H. Marriner, W6BLZ
528 Colima Street
La Jolla, California

W6BLZ ZERO BEATS EUROPE

We decided if CQ's Editor Wayne Green could sweep like a meteor across Europe in his Porche and stir up the troops, it would be a good idea to see what is over there. Thus on April 25th your columnist departed with an amateur call book under one arm and a stack of old 'DX' cards in the other. We left Los Angeles at midnight flying via SAS on the polar route to a morning stop at Winnepeg, which was cold, wet and barren with a 25 degree temperature outside. After refueling we went right over the ice cakes on Hudson's Bay and on over hundreds of miles of nothing but more snow, frozen lakes and ice cakes for the rest of the day. At the coming of night we could look down on the twinkling lights and ice capped mountains of Greenland and Iceland. During the early misty morning hours we skimmed over the green fields of Denmark, landing for a short stop at Copenhagen and then on to Amsterdam.

Our arrival in Amsterdam was off schedule and no courier was on hand to welcome us. The kind services of a bus driver dumped us off right in the middle of the town where our guide arrived on the scene to rescue us. The arrival being so early the hotel was not ready and we were transferred out to a small hotel on the North Sea at a resort many miles from town, where contacting any PAØ stations became impossible. This was the first of our frustrations in attempting to visit with European amateurs.

The next day was spent touring Amsterdam, watching the population scrub everything that didn't move. A short visit to the Isl of Marken which was settled by the Norse in 1100 AD, a cheese factory and we were back in town too tired to even call a PAØ station on the telephone.

Left, W6BLZ in Copenhagen

Early the next morning a courier took us to the railway depot, made a fast left turn and lost half of our party. After a frantic few minutes all were safely on the train to Cologne. Here we boarded a bus for a trip down through Germany. Part of the day was spent on board a Rhine River steamer taking pictures of castles along the Rhine. Our arrival late in Rudesheim made DL visiting impossible again. In the morning we were on our way to Heidelberg for a visit to the old castle. During the lunch stop we hopped on a street car to make a surprise visit to my boy's pen pal, whose family was all quite surprised to see us. After the use of sign language we got back into town and on the way to Basle.

Discouraged at my attempts to contact amateurs I remembered my xyl's parting words to have a good time and decided this was a good place to start. I won't bore you with details of the Swiss version of spin the milk bottle accomplished with a pillow. However if you had been at Engleberg high up the Alpine slopes you would also begin to feel it didn't make much difference whether you visited any HB amateurs for the magazine or not after the party our tour put on.

Traveling on down to Innsbruck, Austria the next day, I did keep an eye open for anything that resembled an amateur antenna with no avail. After several attempts to converse with maids or whoever answers amateurs telephones, I gave up and went on a 9000 ft high ski tramway. Here I visited a ski lodge in the snow where they just drink beer and pet giant St. Bernard dogs. My brother spotted a St. Bernard going across the snow and said, 'Can you see if he has any beer in that barrel around his neck? If so call him over'

Because there was a traffic jam waiting to get back down on the lift we joined in with a gang of Alpine troops on leave who were hitting it up with a musical instrument made from a broom handle and an old spoon. Even on the ski lift going down they thumped a tune on the car floor with the ends of their skis.

From Innsbruck our course took us over the Dolomite Alps to Venice where I went in training pouring wine into a glass on a bouncing bus. I was never a very great success at this because most of it went down the sleeve of my coat. In Venice during a gondola ride I was thrilled to see a 20 meter beam on a building off the grand Canal but no way in the world to find out who it belonged to.

After Venice we made a fast train trip to Rome where American cigarettes cost 60 cents a package. With cigarettes all train conductors became fast friends by sign language. In Rome our hotel was out from the city. Going into town I went into several radio parts stores in an attempt to locate amateurs but just received blank stares.

Arriving in Nice I expected in-

structions from Bill Orr W6SAI on how to get up to his Villa hoping I wouldn't have as much trouble as Wayne did locating it. Getting off the bus at Villa Franche a real attempt was made to locate Bill with sign language. Each person I stopped assured me Leopold Street was just a few blocks further on. After walking for miles up a mountain side I was told Bill had been gone all day. I want to tell you this was the hardest copy of WRA I ever had to deliver for Don, and it made me feel sad to just push it under the door with no eyeball QSO.

The next day at Nice I went down to the beach to find out if Playboy Magazine was right about the yl's changing their clothes right on the beach. THEY ARE RIGHT! That evening I investigated a dive and found the French girls are blond, have slim ankles, short tight skirts and all are 18 years old, speak English and dance bee-bop.

Leaving Nice I had an unfortunate night train ride to Paris via Toulon, couped up in a train compartment with several beautiful yls. You wonder how I slept? This I am not going to tell you. The hours went by amazingly fast and we were on a tour bus in Paris before I knew it. That evening I was so tired I didn't even go to the Follies but tried to get some sleep which was impossible on a hot humid night, looking over the roof tops at the French people trying to get a breath of air and making love.

In the morning I started out in search of 4X4CJ who wrote a cryptic diagram of how to find him in Paris by calling Paul the barman or via F9MS who didn't have a phone or F9BO whom I called regularly on the hour but no answer. The next morning we took off for London. Here I embarked on a six day tour of Scotland.

In the little town of Braemar, Scotland after four weeks in Europe I looked out of my hotel window in amazement. Right there, across the street was a beam antenna. Investigating I found it belonged to GM2CJR. After all this time looking for amateurs I was now torn between drinking Scotch with George, GM3CJR at his beautiful location or going for a walk down the Lyn o' the Dee with one of our most beautiful passengers. After a hasty consultation with George we thought amateur radio ought to be sacrificed at this point. I am sorry that I did not have a whole day to QSO George as he lives in one of the best locations in the whole world. If you ever go to Scotland don't miss Braemar where I am sure that you will forget all about amateur radio. I might mention the bars close at 2130 and the hotel locks the door at 2200, this is good to know as I had a hard time getting back into the hotel. Wayne didn't mention all these things ahead of time for me, but you know now, if you go out to visit amateur stations?

The rest of my trip was uneventful, spending a few days in London, air trip to Copenhagen, boat trip to Sweden and back to Copenhagen and a long trip back over the ice

Continued on page 34

Bob Avigor, 4X4CJ whom we tried to locate in Paris.

VHF Record

Robert Cooper, 820 Tully Rd. Modesto Calif.

KH6UK-W6NLZ DID IT! — 2,540 MILES ON 220.00 MEGACYCLES

'I first heard Tommy at 2030 on Monday night (June 22) but he faded down before we could make contact'. Speaking is John Chambers, W6NLZ, of Palos Verdes Estates, Calif. He is describing his contact with Ralph Thomas, KH6UK, on 222.000 megacycles over the already famous path of 2540 miles across the northern Pacific Ocean. He continues: 'All of this time we were maintaining liason on 14 megacycles Tommy was having the same trouble he had last year...the RCA overseas telephone gear was getting into his gear. From 2035-2115 Tommy was running his code wheel and running around shutting down RCA gear to clean up his receiving situation. Then I was hearing him again between 2115 and 2130 and we had a contact of sorts...During this time I could tell he was excited..he was calling me KH6NLZ on occasion! And then...again nothing until 2200 when he dropped back in once again and steadily built up with slow fading...each fade taking a little longer to run from the bottom of the fade to the top. At 2230 he was S9 here. I switched to SSB about this time and he reported that I was loud...but he couldn't find anything around to inject into the receiver to demodulate the signal. The BFO didn't have sufficient injection to do the job I guess. Maybe he was just too excited to tune me in properly. He was S9. I was S9, from 2230-2300. I called W6MMU on the phone. Don wasn't home. I tried K6UCE, he couldn't hear Tom. I tried K6GTG, nothing there either. I even called Turk, W7LEE, but he wasn't home. Tommy was out from 2300-2322. When he came back in, and stayed in to 2332. I worked him again, then heard him feebly once more around 2340 then nothing. During the peak Tommy listened for Frank, W6AJF, but neither of them could hear each other.'

Schedules are continuing, 2000-PDST each evening on until 2200 or so, depending on how conditions look, but a big new project is now under way, a shot at 432 between Hawaii and California! Using a frequency of 432.000 megacycles and 416B amplifiers into super hot converters. The rigs will run the legal limit, 50 watts, says John. The extra soup will come from the antennas, 176 elements on each end 25 db gain on each! Tommy's 432 gear is just beginning to take form and John tells us his needs some improving. But just as soon as gear can be put into order, schedules will begin on 432 mc using vertical polarization! Both have high hopes of beginning schedules before Aug. 1st in time for the late summer calms in the northern Pacific. The same calms which gave them contacts on 144 mc one year ago.

What did the weather map look like that fateful day, just weeks ago? California proper was under the seizure of a large high pressure area extending from western Nevada south into the Pacific, with lines of almost equal barometric pressure from the California coast southwest far into the Pacific, probably all the way to Hawaii. We will have more to say about Pacific weather patterns in the future,

a la W7QDJ.

SPORADIC E on 144 MC

5 VE3's, a W2 and a handful of W5's had a ball for themselves between 1700-1900 CST on June 17, by sitting in on the longest E skip opening on record, as far as 144mc is concerned, W5YYO, Borger, Texas, was the hero of the day when he worked all 5 VE3's and W2YRI, Lockport, New York. The confines of the opening are apparent when one sees a map of western New York and south eastern Ontario, and the panhandle of Texas. W5YYO is 35 miles NNE of Amarillo. Also in on the opening in the panhandle was W5MJD, Joe, in Amarillo who worked VE3ELA, VE3AQG and W2YRI, Phil, W5SFW tells a story of his sad plight, calculated to make you weep in your beer. Phil had taken down his two long yagis the weekend of June 13 to haul them to the field day site of the Panhandle Radio Club. The site was a nice one and the two meter rig was situated in a water tower 120 ft above the ground with 15 ft of coax feeding Phil's two large longjohn yagis. He swears W2YRI hit peaks of S9! Phil zero beated the W2 with his 6N2 and called him for over an hour with no results.

During this same period when the MUF reached as high as 144 mc and above, 50 mc signals skipped over distances as short as 220 miles! Stations in Dayton, Ohio were working Chicago on skip. As fantastic as it sounds, this probably represents one of the shortest (distance wise) 50 mc openings on record and the highest MUF ever recorded by the amateur crew.

June 10, I sat here in Modesto tuning the band, listening to a half dozen W9's pounding in, working other California and Arizona stations, I heard K9MGV calling CQ New Mexico. He signed, and on his frequency, plopped on another station, calling him, K9MGV, 'K9MGV, this isn't New Mexico, but will OLD Mexico do? XE1PY calling'. Some guys have all the luck.

In spots, six meters have been sounding not only good, but fabulous. From June 6 through June 13 the band was open daily here on the coast and throughout the country, the amazing part, 90% of the openings involved double hop, stations 1500 miles plus away, east coast stations, 2's, 3's, 4's, 8's and 9's. On the morning of June 6, New Jersey, Pennsylvania, Ohio, West Virginia, Maryland and Virginia stations pounded in for three hours, just like F2 season. No sign of Delaware however. In a 2 hour 30 minute period on the 10th of June, we heard 34 states and all call areas here in Modesto. Bob, K2RRG, tells us he heard all call areas on the 10th, and worked or heard VO2, VEL-4, KP4, CO, XE and all of the west coast states! The band took a drop between the 13th and 25th but it is showing signs of coming back to life. More double hop on the 25th thru 27th. Even the

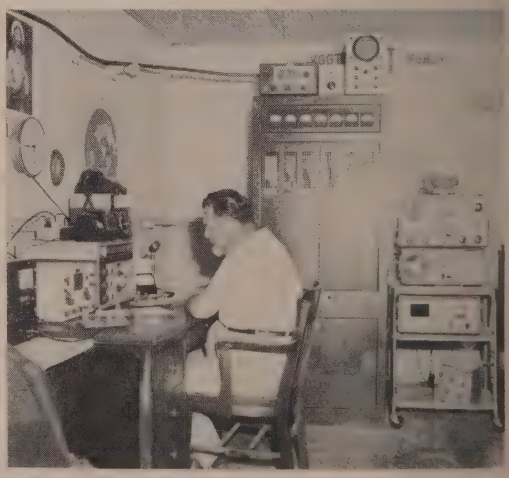
432 RECORD RETURNS TO USA

Following a liason contact on 144 meg SSB on the morning of July 4 W9GAB, Beloit, Wisconsin and W4HHK, Collierville, Tenn. contact was established on 432.000 megs at 0712 CST. CW was used with both stations using 416B pre amps into crystal controlled converters. This is over a distance of 500 miles, which ties the World Record of G3HAZ and DL3YBA set in 1958. This replaces the USA record of 410 miles between W1RFU and W4VVE set in the fall of 1957. Other equipment at both stations: 50 watts input at both ends...W9GAB's antenna consists of 4 long yagis in a box array, While the antenna at W4HHK is a 64 element broadside array. both horizontal. This contact gives W4HHK 3 states and 3 call areas on 432 megs. Paul, 4HHK, notes that 9GAB played back the tape recording he made of HHK's 432 signal on 144 megs after 432 went dead and it was a most unusual experience. Here's for more and better 432 CW work with big HORIZONTAL beams (in the East).

rare states have been pounding in. Louisiana stations were all over the dial the morning of the 13th. A real odd one showed up for one hour and 30 minutes on the 27th, CO2GX, Matanzas, Cuba, in from 1000-1130 working lots of W5's, WØ's and one or two sixes. His 50 watts hit S9 here around 11 AM for 15 minutes, Phil, W5SFW, managed to hook Jose on the 26th for his 22nd country. In the same area, K5IQL says, K5RBE is operating maritime mobile and portable in Honduras as HR2DK, should you need a Honduras QSL on six meters. In Manitoba, VE4, this is a rare one, Bob, K6QXY tells us VE4JX is on the air and active, and has been worked from California. Looking for some real sport, try the trick of Stan, W7SSQ, Bremerton, Washington. He runs 1.5 watts to a five element beam, and has worked some 36 states to date on 50 megs. He hangs out near 50.004! No one should need Wyoming now, but in case you do, augmenting the two regulars is new K7HKD in Cheyenne. And a real odd one, K2LMN and W8NEE both report hearing a CT1 on six during the morning of June 6! On Es yet! A whole new bunch of XE1's on the band, including XE1BBB, Ike, VE7AQQ moved one rung closer to WAS with an Oklahoma QSO, he still needs Minnesota, don't we all? Bob, W7UFB is portable 7,25 miles NE of Thermopolis, Wyoming, and puts out a good signal on either his six meter beam, six meter whip, or ten meter whip! W6EDC finally made the grade by snagging a Louisiana station for his 49th state, and now awaits his QSL card. Should you need another South Dakota contact, try KØHVF/Ø, in Rapid City. He augments WØENC and W7JGR/Ø. At long last, Bob Grimm, K6RNQ, made his 50 mc WAS, when he snagged WØGNS in North Dakota.

OCTOBER 9, 1959

Since my introduction to the world of VHF-UHF in June of 1950, I can't recall when I have ever looked forward to a single day with more anticipation and enthusiasm. October 9, 1959 will be the 13th birthday of a meteor shower, which re-occurs with peak intensity every 13 years. This is the famous Giacobinids Shower, which brings a peak meteor density of 400 per minute! (As compared to the Perseids in August which gives 50 per HOUR, and is considered the best of the year!) In short, meteor burst on the 50 and 144 mc bands will be so close together, and so intense, that almost solid phone QSO's should be possible with stations in all directions from 500-1,500 miles away on 50 mc and undoubtedly 144 mc will be open for solid CW QSO's over distances of 800-1,500 miles! There is even a chance that some burst work can be done on 220 mc, so intense is this shower. Many questions will be answered during this year's re-occurence of this 13 year shower, such as the possibility of work beyond 1500 miles on 50 and 144... And the QRM! One thing for sure, to do much of anything, you had better have a keying provision in your rig, and a selective receiver. This is the day that a properly located and well set up station might work all 48 original states on 50 mc! The hours of the



The Station, operating position, and the chief operator himself at K6GTG, Arlington, Calif. Bill's KW signals on 50, 144 and 220,plus signals of real potency on 432, 1296 and above have made he and his station known the world over.

big shower, 1100-2200, with six peak hours. We will have more on this from here on in.

NEW 1296 RECORD

New on the micro wave horizon is the breaking of the old 1296 record of some standing, some 10 months standing. During the June VHF ARRL Party, W6DXJ/6 set up store on top of Mount Pinos, the same location he used to work K6AXN/6 on top of Mt. Diablo last September, over a distance of 263 miles. This year 432 was used as a liason link between Mt. Pinos on the south and Bald Rock on the north. Bald Rock is in the coastal range west and south of Redding some 60 miles or so. Early morning schedules were maintained Sunday morning and contact was made almost immediately after the gear was turned on. CW was used, even on 1296 mc.

MORE SPORADIC E ON 144 MC

Following the 144 opening between the Texas panhandle and Ontario reported earlier in this column, Phil Patterson, W5SFW, re-erected his two meter yagi array in a most hurried fashion, in time to catch another opening on Sunday, June 28. Skip wasn't short for Phil, but he was listening to both ends of conversations between stations in Alabama and Louisiana, and Georgia and Mississippi, over skip paths of 250-400 miles, and he thought that 144 would be open over a path about 1200 miles long with that high intensity area as a center. Hearing Grid, W4CJO, on 50 working stations in Tennessee and Alabama. Phil finally hooked Grid and asked him to go to 144 at 1:45 PM CST. Grid immediately heard the signal from Phil's 6N2 over the 1200 mile path. CW contact peaked 599 and was maintained for 15 minutes, then looked for other stations, but neither could find any signs of signals. Phil watched from his end as the skip swung north and he arranged a sked at 3:30 PM CST with W4ZXI in North Carolina and when 4ZXI fired up his kilowatt, Phil heard a fading signal rise out of the noise, flutter a little and fade back into the noise. 4ZXI couldn't find his key and signals were to weak for AM copy, so they lost out on this one before any contacts could be established.

50 MEGS

New in Boise, Idaho, W7UBI. Watch for him. XE1PG in Mexico City tunes with pan adaptor, so use your VFO accordingly should you hear him. The evening of June 29 was a hot one for California stations needing stations in the 'southern mid west' and Gulf Coast. The band opened into Oklahoma and Texas around 1730 and stayed open for 3 hours plus in most areas. After 2100 PDST most single hop stations were gone but stations in Alabama(K4CGL, K4GQK, etc), Tenn.(K4FQA, etc), Arkansas (K5OZE) and Missouri(WØLLU, others) pounded in until after 2230 PDST. K6QAX and K6JJU both snagged number 48, in K5OZE. Alaska here they come! K5IQL surprised this writer by coming back to my CQ DX at 0530 PDST on July 1! What a way to start off July I thought, and then, very little outside of W7 and W5 since.

SAN JOSE

What a VHF meeting took place Friday evening July 3 when W7MAH headed the foriegn contingent present at the informal get together sponsored by the NCSMDXC. The 'N' in NCSMDXC stands for Northern but K6RNQ suggested we change it to NEVADA so as to include John, 7MAH. We will go into more detail at a later date. Suffice to mention that the VHF meeting included talks by W6VSV, Bob Melvin, on his 3CM gear, K6AXN, Mike, on his recent work on 1296 and a demonstration of the FB crystal controlled gear he has working on this band, and W6WWJ on methods of measuring unwanted radiations from transmitters with an eye towards keeping two meter rigs and other VHF-UHF rigs on the amateur bands and out of TV sets.

LAST MINUTE NOTE

Proving once again that close watching of E skip on 50 mc can tip you off to 144mc Es work Phil W5SFW, snagged 3 VE3's on 144 Es

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ROYAL ORDER OF HOOT OWLS

(Copyrighted 1955-W7YJE)

R.O.H.O. #1

Do you remember that old time family picnic? Pink lemonade, colorful balloons, loads of gags, laffs and contests?

You do! Well you must have been one of the three hundred who attended the 5th annual family picnic of R.O.H.O. in Seattle June 21st.

Starting with nomination awards and special guests(FCC) our picnic program got under way with the cutting of a huge 'Hootowl' cake by Woody, W7FCV. (Last year this cake was a phoeny.) A special awarding to: Tom Carson (KIRO-TV) cameraman, our special gag loaf of bread, a six foot alligator(less cannonballs, Hi). W7HFC is Toms ham call.

Our many contests were highlighted by such events as: pie-eating, nose contest, crazy hat contest, hairy (feathers) chest contest, with W7CAA the winner of the hairy chest. One of the luckiest fellows to win a prize in a drawing was, K7DNF, Ken won a 'Rotor', yes sir, and it will fit any 1938 thru 41 Chev, hi! Last year this gag drawing was won by Bob, W7CIO, who won and now treasures a beautiful 'Receiver. Bob tells me he may use it down California way if it will fit under the bed, hi!

K6RCM, down Santa Rosa way won a nomination award (1st place) along with W7EMX and W7IKM. Plaques' were given with other gift awards.

The kids received free balloons, candy bars, also pie contests and a lucky airplane ride won by Jr. op of W7VOG. Every teen-ager received a new 45rpm hit record donated by Radio 'KAYO' (W7WZK, old Tad Jones, chief engineer and ROHO #12 did the honors). Tad is the teenage scream (disc jockey) of one of our better (hi!) D.C. stations.

With everyone full of the wonderful 'Potluck' food under the fine direction of XYL W7BKV (Mildred) the picnic rolled to a beautiful end. Film coverage on all picnic activities were recorded by KIRO-TV (7) and presented on the CBS news, the following evening. Another first for 'Hootowls'.

As some of you know, you can now keep up on Hootowl activity thru WRA and many of you may be receiving your Hootowl subscription. If not write to W7YJE Please tell the gang in your area about it.

Many thanks for your postcards on our first ROHO article in May WRA. Keep tuned to WRA for ROHO news. 'Photo's soon to follow'.

Many members still do not understand that they must CONFIRM ALL ROHO nominations made. Please help us get our certificates out to those who have earned their membership by confirming as soon as possible.

A cheery hello to the new hootowl in the Islands of KH6-land, and to all the 50mc gang down L.A. and San Diego way.

Remember you too can become a 'Hootowl' if you are on 50mc, Sat. night at 2400 and work a member station for one hour (0100).

Next month 'Hootowls around Puget Sound, Until then 73's and keep them 'hooting' on six.....

Some of the Hootowl gang made a trip up to see the 'Monster' on the mountain, namely Naval Radio Station 'TL' or better known as 'Jim Creek'. The xmitter is a 'DX' mans dream, running a cool 1 million watts output and an antenna system strung between two mountain tops, of twelve 200 ft. towers, each supporting the network of antennas.

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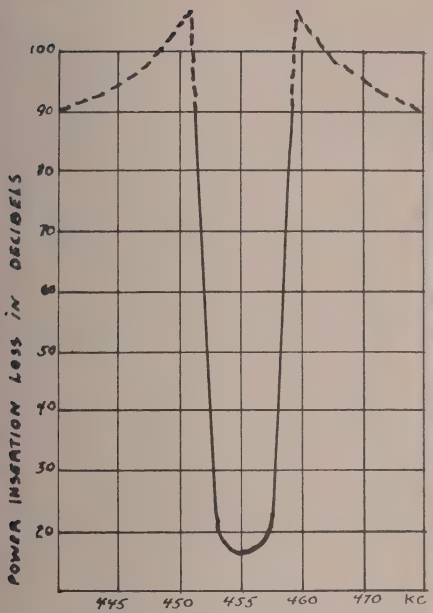
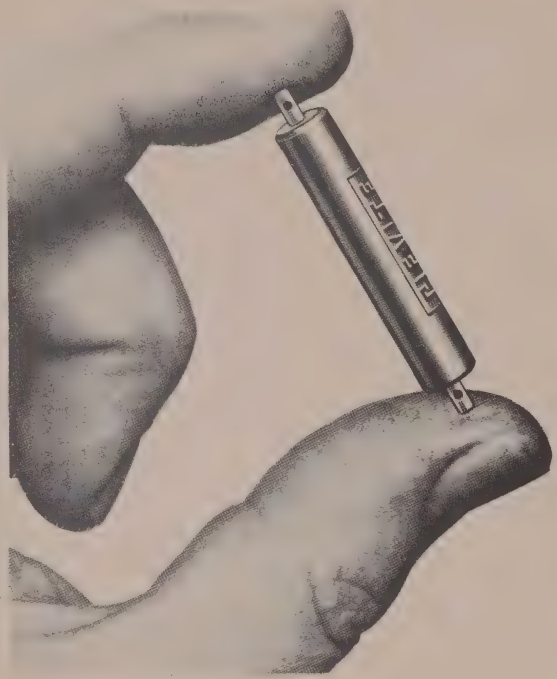
Sidelights on Sideband





Lester A. Earnshaw, ZL1AAX
Box 51, Warkworth, New Zealand

Illustrated above is the passband and actual size of a new piezo electric ceramic filter by Clevite Electronics.

There are times when the present fast progress of electronics scares the daylights out of me! How can one keep up with it all? Transistors, Zener diodes, variable capacity diodes, parametric amplifiers, piezo-electric ceramic filters and the like, each of which may be subdivided into a further host of brainteasers. However, like most brain teasers, these are frightening only because they are unfamiliar. By delving into literature concerning some of these I have been astounded by the possibilities.

Clevite Electronic Components for example have come up with a piezo-electric ceramic filter, (PZT) suitable for SSB use. This filter consists of a series of ceramic discs, or more properly, radial mode resonators. The sections are coupled together electrically and make for an extremely rugged filter. Physical size is - hold your hat! - 1 1/2 x 5/16 in; tubular in shape. The shape factor, which is the ratio of bandwidth at 6db to that at the 60db points is extremely good - around 1.6 / 1. Shapefactor varies with different units on different frequencies and of different bandwidths of course. A filter with a 10% bandwidth (5kcs at 500 kcs) has a shape factor of 1.2/1. It needs only a casual glance at fig. 1. to see just how useful this particular filter is going to be to the sideband enthusiasts.

Clevite ladder filters range in impedance from 1000 ohms to 2000

ohms at 455 kc which makes them ideal for matching into transistor circuitry. Step down IF transformers or series tuned windings allow easy matching of tubes to the filters. And the price..? Well, I have nothing definite as yet but I understand they are so cheap everyone will want one.

Also made by the same firm are piezo electric ceramic IF transformers. These are not IF transformers in the sense that they are not made of wire and wax but are discs like our filter above and they're so small you could fill up an IF can with a couple of dozen of them. Lordy me! What next.

The Murata Mfd. Co. Ltd. in Japan also manufactures an IF of this kind. Though it is advertised as a mechanical filter I note that the Murata Mfd. Co. manufactures mostly ceramic products and from this and the legend which goes along with the picture of the product I have concluded that this transformer is also PZT. What a far cry todays ceramic products are from the hand made ceramics of ancient days!

SHAPE FACTOR...

Perhaps it would be pertinent if we now discussed the words 'shape factor'. I well remember a friend of mine telling me of a certain filter that had a shape factor of 1.2 / 1. I remember my envy of he who possessed such a remarkable filter. It wasn't 'til some time later when I had the opportunity to conduct a few experiments with this filter that I got a full under standing of shapefactor. I believe it is well known the words mean the comparison of bandwidth measured at 6dbs down to that at 60 dbs down. We express the summation of our measurements as a ratio such as 2/1. If the filter has a 2/1 shape factor we mean that it is twice as wide at 60 db as it is at 6 db. Consider a filter at a frequency of say 455kcs that has a shape factor of 2/1 and a width at 6 dbs down of 3kcs. The width at 60 dbs will be 6kcs. In other words the passband has 'grown' by 3kcs at 60 db point. Now, if you are not confused, consider a filter that is 6kcs wide at the 6 db point that also has a shape factor of 2/1. At the 60 db point the width of this filter will be 12kcs. The passband has now 'grown' 6kcs as against 3kcs for the narrower filter. What does this mean? It simply means that the skirt of the narrower filter is the steeper of the two - an important consideration if the filter is to be used for sideband. It means that one must not consider shapefactor as necessarily being a measure of the worth of a filter. A filter 3kcs wide and with a shape factor of 2/1 may prove to be a better filter for SSB requirements than a 6kcs wide filter that has a 1.8/1 shape factor.

The moral to this little story is: Choose your filter with the care you would choose the winner of a bathing beauty contest. Take all things into account - shape factor, bandwidth, curves, etc., etc. Sufficient if I close the subject at this point!

POWER SUPPLY REGULATION...

The effect of variation of power supply voltage upon the sideband signal was very clearly brought home to me a few years ago. At this time I used the AM final now converted to a ZL linear and the final supply without alteration. The Class B HF100s and power supply lay idle. When a 'misguided' fellow amateur bought the modulators I dismantled the supply and added its filter capacitors to the final supply. I had no particular reason for doing this except perhaps that I never like seeing things lying idle. Imagine my surprise when I found that the scope pattern nearly doubled in size before peak flattening became apparent. This began me thinking...

Many cups of tea and coffee later I put the power supply on the work bench and commenced a rebuild. Whereas, before, I had used a two

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Antennas

'Judge' K7GCO
202 S. 124th St.
Seattle, Washington

The Hy-Gain Tribander at K7GCO

A Report on the Hy-Gain Tribander

I think I am one of the last of the one band beam die-hards. The two major reasons center around the two most important features of a tri-band beam, the matching and the coils or traps. Other considerations are pattern bandwidth, construction, and ease of assembly.

An outstanding feature of the Hy-Gain is, I believe the Triaxial gamma match. The gamma cures many of the ills of tri-banders. First of all it creates a 52 ohm match on all three bands. In one respect the pattern depends on it or the lack of it. The reason for that is this. The impedance of a split driven element of a three element beam of normal spacing is around ten to fifteen ohms if tuned for maximum gain. This is of course too low to match 52 ohm coax. The only way you can raise the impedance with only a single driven element is to shorten the director and lengthen the reflector (more than their maximum gain settings) so they don't 'bite' into the driven element as much. Unfortunately a substantial loss of gain front to back and front to side occurs. Front to side is more important than front to back because there are two sides and one back. A lot of the contest men I know are always grumbling about the QRM from the back and side. I am sure you agree that the best possible pattern is a must.

If the beam has a gamma match (which it should have anyhow if you use coax) the beam can be tuned for the best possible pattern because pattern and impedance match are independent of each other on the Hy-Gain. Since the shield is grounded to the center of the driven element it offers lightning protection if the rest of your tower is grounded, and it keeps the RF off the shield also. This is Something you can't do with a split driven element fed with coax.

My 'Workshop' beams were tuned for 52 ohms by shortening the director 12½ percent and lengthening the reflector 8½ percent. Its gain

Close-up showing construction of element and boom mount

was only 5.5 db and the front to back was only 18 db and it had full size elements too. The half power points (3 db down) were 68 degrees apart. This fat pattern was alright several years ago, but today competition is just too rough and a compromise pattern just won't do.

The reason that three gammas can be paralleled and yet act independently of each other is that the two 'off band' gammas present a very high impedance parallel with the resonant gamma, which presents a value of 52 ohms to a 52 ohm coax. It works like an automatic RF switch.

One spacing for all three elements is acceptable for two bands as good patterns can still be obtained on both bands If, I say if, the spacing on the low band(20 meters for example) is no less than .1 and .15 wave lengths, or about 17 feet. The Hy-Gain has a separate 10 meter reflector optimum spaced for the best pattern on 10. A second director is available for 10 giving a four element beam on 10. I recommend the second director strongly as many users report sharp increases in DX performance since they added the second director. This is not necessarily due to the extra db or so gain, but the apparent lower angle of radiation.

The coils are enclosed weather proof lumped constant traps. The new model Tri-Bander coils are set and sealed at the factory. The coils are a good 1½ inches away from the element and are enclosed in a water tight non-metalic container assuring the highest possible Q attainable with the least amount of inductance, thereby not shortening the element to any great degree. The reflector is 32 feet long and that's almost full size.

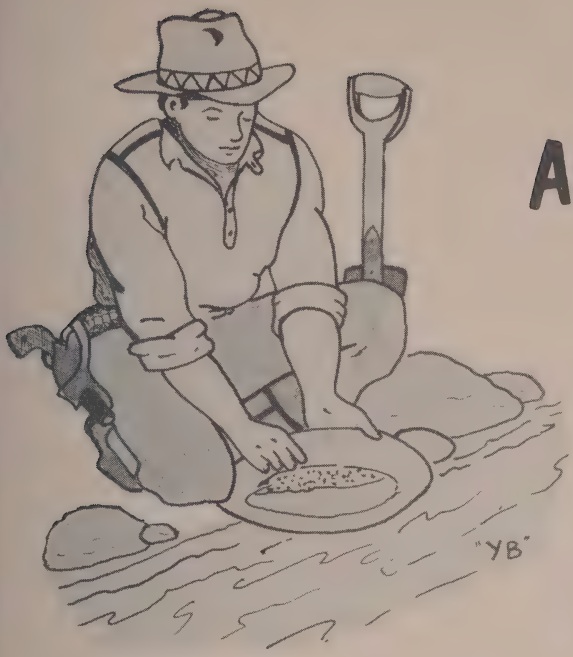
The construction is as rugged as I've seen. I can assure you there are no worries in that department.

RESULTS

By setting the gamma according to instructions I had 1.3 to 1 VSWR on 20, 1.05 to 1 on 15, and 1.1 to 1 on 10. Apparently the power wires I have in front of the house threw the beam off a little on 20. In 10 minutes time, I touched up the gammas and now have 1 to 1 on all three bands at the resonant frequencies.

In the contest on 15 I frequently got the DX station I was calling on the first call and I was right in there with the big boys too. This is I think one of the acid tests. One thing I noticed on 20 that indicates the Hy-Gain has a good pattern is this: With my old Workshop beam I seldom had to turn my beam when in a three way with a Seattle station and an east coast or midwest station in order to hear the Seattle station when they were on the side or the back. However with the Hy-Gain I have to rotate the beam to the Seattle station or the QRM takes him out.

The Triaxial Gamma Match. Each gamma developes 52 ohms independently of each other. (See text)



Are You Missing A Gold Strike?

Howard S. Pyle "YB" W7OE

I mean *just* that! Figuratively speaking, of course, for I am not referring to a pot of precious metal at the end of a rainbow-hued trail. To the radio ham, be he novice, technician, general or extra class there is 'hidden gold in them thar hills' and the 'Golden Key' which will unlock the secret door is labelled, 'SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, Washington 25, D.C.'

How many of you know about the wealth of authentic, factual information available from this dignified office bearing such an austere and auesome label? How many of you realize that printed-panphlets, books and similar information which have run into millions of copies, can be had on any conceivable subject, and costing from a nickel up? How many of you know that thousands of informative brochures, booklets and even full-sized bound volumes are available on radio and electronic subjects alone? I'll wager that not ten percent of the radio amateurs of the land have made even superficial inquiry! And yet...*there* is your 'pot of gold'.

For many years I have kept my name on the mailing list at this Washington office, to receive periodical listings of their publications as issued. I have not only received extremely valuable information on electronics but on plumbing, electrical wiring, carpentry, control of rodents, prevention of termites, gardening, cooking...you name it; they will have authentic, factual data on any subject and at a cost to you in 'peanuts', postage paid!

Let me give you a recent example. A late list offered among the listings, a book entitled, 'RADIO RECEIVERS'. The description sounded attractive; complete information on receivers from simple theory, elementary circuit schematics, block diagrams and on through installation and maintenance. The same list carried a title, 'RADIO TRANSMITTERS' and the description was of the same nature; both books

were of approximately 200 pages each 8½ x 11 in size, and bound with leatherette covers. The cost of the Receiver book was listed at $2.50; Transmitters, $2.00. An accompanying list described a publication of similar size, but paper bound, entitled, 'BASIC THEORY AND APPLICATION OF ELECTRON TUBES' $1.25. A total of some 600 pages with scores of photos, hundreds of block diagrams and thousands of schematics and line drawings, for a total cost of $5.75...how could I lose?

I have never before been priveleged to examine such excellent material! The three publications are so completely informative and written in such a simple and elemental manner that their contents can readily be absorbed by readers from High School age up. A novice can read them with complete understanding and by the time he has finished them, if he can't make the theory for General or Technician class, he'd better go back to scaling fish! And, for the General aspiring to Extra class, if you can do your 20 wpm code, know your regulations and are eligible under the experience requirement, these books will give you everything else you need!

They are *not* 'heavy tomes'; they are written in the language of simplicity. Are superbly printed and the schematics and line drawings are 'out of this world' for clarity, size and general excellence! Their purpose is to instruct military personnel recruited from all walks of life... 'the butcher, the baker and the candle-stick maker' in the simple fundamentals of radio. Whoever collaborated to produce such admirable work for the Government, most certainly deserves a niche in the 'Hall of Fame'.

A large part of the material was developed by the U.S. Bureau of Standards; there is no more authentic and authoritative source. The facts were then apparently reduced to language completely within the grasp of the 'man on the street'... even down to the early teen-age group. What few equations appear are completely simple and can be understood by anyone with even an elementary knowledge of High School algebra. Such equations and formulas are kept to an absolute minimum. The books are as simple as that all the way through. What do you bet that one or more hams played a prominent part in the writing? Remember too, that these publications, like all others procured from this source, are absolutely non-commercial; they make no profit for anyone; Uncle Sam is lucky if he breaks even! They carry no advertising of any kind; every page is *meat*!

And now, you ask, 'How do you go about ordering them?' Here it is: write a letter listing the publications you want, as follows:

Air Force Manual 100-5: Catalog No. D 301.7:100-5 Radio Receivers $2.50

Air Force Manual 100-6: Catalog No. D 301.7:100-6 Radio Transmitters $2.00.

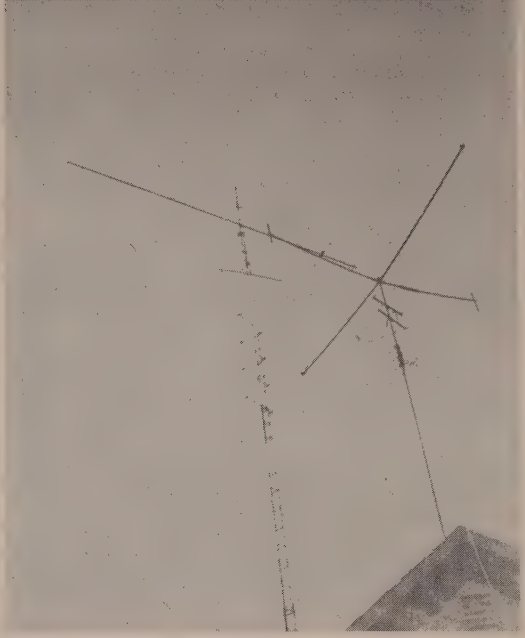
Army Technical Manual TM-11-662: Catalog No. D 101.11-662, Basic Theory and Application of Electron Tubes $1.25.

Address your letter to 'Supt. of Documents, Govt. Printing Office, Washington 25, D.C.' Be sure to enclose your check for the total amount of your order; they will accept personal checks, money orders or even registered currency but NO, repeat NO, postage stamps. Shipment is prompt and postpaid.

For you who are interested in basic circuits for every radio device you could possibly use, in it's most simple schematic form, together with complete parts lists and values, as well as performance data and curves, you can get 157 pages of amplifiers, oscillators, detectors, audio systems, video, power supplies etc. paper bound, for one buck! Simply add to your

Continued on page 36

The seven in line, 90 ft. above ground, dwarfs the four bay TV antenna, further down the tower and the 30 ft rotating rhombic on a closer mount.



Seven in line on Six

Robert Cooper, 820 Tully Rd. Modesto Calif.

Perhaps no amateur band has seen as rapid growth of activity in so short a period of time as the six meter band. With the growth in activity came the increased interest in DX, as it appears to affect the lowest of our VHF Amateur bands.

Six meters is 'the meeting place of all known forms of wave propagation'. On this band we are able to dabble in tropospheric bending, sporadic E, aurora reflections, meteor scatter, forward scatter, F2 backscatter, moon bounce and the upper limits of F2. Because we have the chance to fool with so many varied forms of propagation, six meters is one of the most fascinating amateur frequencies to work with, Fortunately for the DX man all forms of the varied wave propagation types come in to the receiving locations at low angles. In designing an antenna to make the most of this low angle reception, we want the maximum forward gain concentrated in a fairly low vertical angle.

With this thought in mind I adapted the 'long yagi design' to 50 megacycles. It was found, however, that certain construction and antenna erection problems encountered to a lesser degree in two meter models really presented problems on on six meters. Foremost among these is antenna height above ground. Users of the two meter version of the first long yagis were quick to discover the problems arising when the antenna was not kept 'high and clear'. At six meters, keeping the antenna high and clear can present quite a problem, as 'high and clear usually means at least two boomlengths above electrical ground. This is not to difficult, but, keeping it clear is. Tests I ran indicated that the antenna should be at least four boomlengths removed from objects in the same plane, or near the plane of rotation. What happens when these rules are not adhered to? For one thing, you may end up with some pretty wierd looking antenna patterns. Secondly, you may discover that the SWR on the beam is running to drastic proportions, when you would have sworn that it would turn out

OK. (It might be appropriate at this time to mention that it is virtually impossible to tune a long yagi properly, UNTIL it is mounted in it's final radiating position.) So even before you begin construction on a long yagi for six, think about where you can mount it. If you can't get it above surrounding power lines, tv antennas and tree tops, stick with the smaller 3 and 4 element yagis.

DESIGN 'n STUFF

The first long yagi to be mounted at our Fresno location was a seven in line monster on a 28 foot boom. The design was not very orthodox. Element spacing is given in table number one. In the case of the most forward director being spaced .4 wavelength, reducing the beam to a six in line, from seven, would merely necessitate the removal of this element. The boom length would then be nearer to 21 feet, which, in a crowded location (again speaking in terms of height above electrical ground and distance from other objects) would be more workable. Try to design your beam around the usuable space you have. The SWR across the lower 500 kc of the band did not exceed 1.25 to 1 in actual practice, while pumping 140 watts of RF into the transmission line.

The boom material for the seven in line, or any long yagi, was 2 inch OD aluminum irrigation tubing obtainable from Sears for 30 cents a foot in 30 or 40 foot lengths. Elements used were 3/8 inch OD thick wall tubing obtainable in standard 12 foot lengths in any aluminum supply house, or in surplus lots from airport supply houses. The 3/8 inch OD diameter holes drilled in the correct positions in the boom. Extreme care must be taken to line up the holes so the elements will be in the same plane. In some cases, the elements will not slide through the mounting holes without much tugging and pulling. Under these conditions do not try to remedy the situation by reaming the mounting holes in the boom 'just a little bigger'. Instead use emery cloth or steel wool, or some other abrasive to smooth the surface of the tubing. After all, the tubing was constructed to be

Four element dipole passing through two inch boom. Feed line is connected to to broken, fourth element, which does not pass through boom, but is broken on either side of the boom. Plastic blocks used for element separation also serve to hold the driven element rigid on the boom.

Side view of driven element showing middle spacer (plastic), aluminum end plate and general shape of dipole. The aluminum end plate is 2x3 in. This causes the dipole elements to form a rhombus pattern.

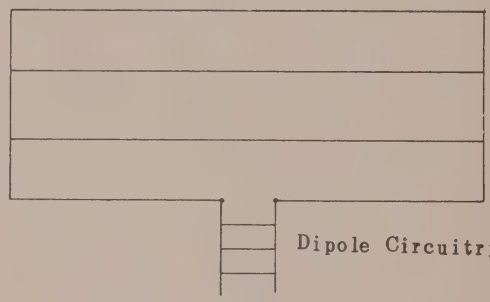
3/8 inch OD, and the hole is a sixteenth of an inch larger and the tubing should slide through. Reaming the holes will result in a final loose fit in most cases, which means a bad mechanical fit between boom and element. This will result in undue mechanical vibration which has been known to set up static noise conditions in the receiver. Mounting the elements in the boom is accomplished through the use of 2 1/2 inch small diameter bolts which slip through the top of the boom, the element and then through the bottom of the boom. As the fit between the boom and element is already quite tight, this will serve to keep the element from slipping at all.

BEAM IMPEDANCE

In this beam, and in all other large yagi arrays, the impedance of the driven element is going to be between 18 and 22 ohms. This might, of course, present a problem of sorts if you were addicted to using 300 ohm open wire line or tubular feedline as many are on the VHF frequencies. Even if you aren't and are of the COAX set, you could spend a night or two wondering about the best method of getting some efficiency between the antenna and feedline. Not owning a fully equipped testing lab, I took the easy way out. Although it is not a generally known fact, a four wire dipole is a dandy device for transforming impedances in a ratio of 16 to one. Thus a dipole on a six or seven in line with the customary 18 ohm feed impedance could be brought to 288-300 ohms by using One of these little gems. Now comes the problem. How to construct such an aluminum cage. Thinking that one picture is worth a thousand words, we have taken one or two of the dipole details. The tubing used is 3-16 inch diameter aluminum, while the end blocks are solid 1/2 inch thick aluminum. The spacers visible in the photo (S) are one inch thick plastic, used to hold the tubing in rhomboid form and spaced equally. With the 1/4 inch holes drilled in

Chart Number One

Length	Spacing Between Elements
R - 10'	
	60"
DE - 9' 5"	
	22 5/8"
D1 - 8' 9"	
	23"
D2 - 8' 7"	
	23 3/8"
D3 - 8' 5"	
	90 5/16"
D4 - 8' 4"	
	90 5/16"
D5 - 8' 3"	



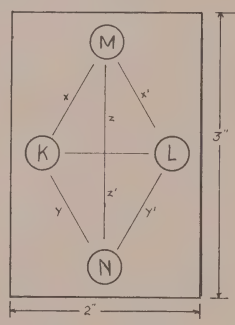


Chart Number Three: Rhombus pattern for element spacers and dipole end plates.

In the spacers and end plate, the size of the plate is not to important except to be sure the pattern formed by the dipole elements will fit through the two inch diameter boom. In chart number three, X,X', Y,Y' and Z should be equal. (Forming two equilateral triangles with a common base between them ie. Z). This will insure you of as close a match to 300 ohms as can be had.

the plastic spacers (in the same pattern, see diagram no. 3), the elements are inserted to form the dipole. As the 4 dipole elements pass through the boom, some imagination is required of the reader. In chart no. 3, elements which pass through holes K and L pass through the boom. Elements M and N pass over, or under the boom. This distance Z1 is exactly equal to 2

inches, when used with a 2 inch OD boom. Simple enough.

Keeping the elements firm in the end blocks is a function of small sheet metal screws which tap into the elements through the edges of aluminum end blocks. Similar practice will hold the tubing rigid in the plastic spacers. It was found that no support was needed where the dipole elements pass through the boom material. Pre drilling holes for the sheet metal screws goes, without mention.

This dipole arrangement is a bear to build, but it is a question of whether you want to fight with a high SWR and uncertain match after the beam is built or with some aluminum tubing before it is built. It requires NO adjustment after construction as the only critical points (lengths which are a function and spacing which is a function of proper spacers) are mechanical, not electrical. All one nneds is a good drill, vise (gripping kind) and a fair amount of patience. If you MUST use coaxial feed line, a foolproof 4 to one balun constructed from RG/11u coax will knock the feedpoint impedance back to 52 ohms, probably giving you a better match than most (mis-tuned) T matches, Gamma matches and delta matches (See ARRL Handbook, transmission line section for data on impedance matching coaxial baluns).

With element mounted and feedline connected, think about a couple of braces to keep the long boom from sagging. One inch OD tubing in standard 12 foot lengths will do the job. With such a long boom, it is best to mount the beam just above the rotor (a few inches at most) so as to keep wind torque to a minimum. This serves to save your rotor from breaking out at the sides and spilling it's innards all over the surrounding terrain. With the boom so close to the rotor, you will have to go above the beam with the braces. Before you afix the beam to the mast, find the actual center of weight distribution..ie. the point where the beam will balance and mount your heavy duty clamp which holds the beam to the mast, at this point. An ordinary tv rotor will turn such an antenna with ease IF you take pains to properly mount and distribute the the weight. At K6EDX, I have had over 100 pounds of VHF-UHF antennas on one Alliance tv rotor (and thrust bearing) for 12 months at a time. It might also be worth the space to pass along a hint in selecting a piece of pipe to serve as a mast. Never any sort of aluminum product. I found the best all around mast material is 1 inch OD gas pipe.

PERFORMANCE

One of the first reception points evident when the beam was erected was the immediate drop in power line noise. No real reason for this except the possibility that the formerly used four element yagi and twin four yagis didn't confine their vertical angle of radiation in those planes NOT PRONE to power line radiation. This feature was especially noticeable on the nightly schedule during the summer months with K6ERG, 175 miles north where signals are often marginal on AM. On our receiving end, the yagi was equivalent to a power increase of eight at the transmitter of K6-ERG. Over a long term period, the results indicated a much lower flutter rate, higher average signal level, less noise pickup and slightly more actual gain then the single four, or twin four, had been able to deliver. The big thing was the lower flutter rate, and the greatly increased signal to noise ratio obtained by reducing the noise value. On local signals the pattern proved very sharp, a front to back ratio of 20 db was carefully plotted on both local, long range ground wave and skip signals. 20 degrees either side of center on the rotor produced a signal drop of 40 db. Forward gain indicated an actual 13.5 db, HONEST GAIN over a tuned refer-

Continued on page 47

DX report

Dick Spenceley KV4AA
Box 403, St. Thomas
Virgin Islands

As a finale to the wanderings of the KS4BB expedition (appearing in the April issue) we are happy to say that the boys located Serrana Bank without difficulty on their second try and nearly 6000 contacts were made from this spot between March 21st and 25th. Returning to San Andres, a goodly number of contacts were made from Vic's station, HKØAI, before the expedition headed home. First QSL was sent to KV4AA, in letter form, and immediately dispatched to ARRL, on April 16th, so that Serrana Bank, Roncador Cay and associated Islands could be acted upon for separate country status. CW QSL's go to W4KVX and Phone QSL's to W9EVI.

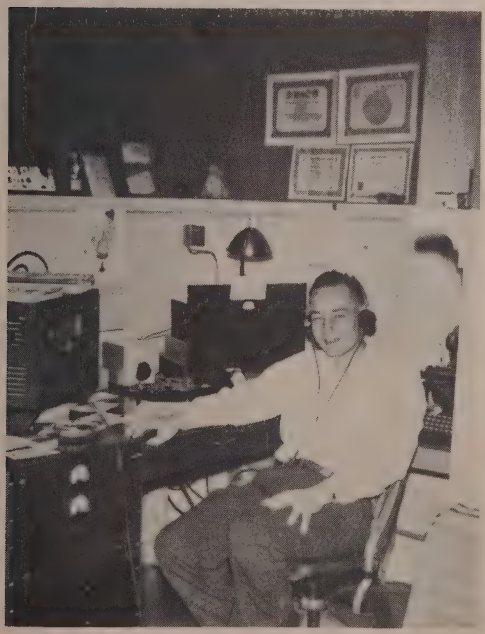
Chuck, KP4AND, operates this neat set-up.

G3IOR and Co., spent a week on the Isle of Man, signing GB3GD. They wound up activity on April 17th. The prefix 'GB' is assigned to expositions etc. and the boys settled for this when a regular 'GD' call would not be given. QSL go via K9ELT or G3IOR.

To the misguided character presently signing 4W1A and advising all to QSL via KV4AA we can only say that we hope his sins catch up with him. For the rest of the gang we wish to state that KV4AA ONLY handles Danny's cards (YASME Expedition) and this chore is of such magnitude that KV4AA is behind on his own QSL'ing to the tune of about 3000!

We are advised that VQ8AD may be found daily on 21055 between 1600 and 1700 GMT.

VR1B is on the air from Tarawa (Gilbert and Ellice) and was worked



W7OCL, Bob Stephenson, is secretary of the Willamette Valley DX Club. Licensed in 1949. Bob now has 205 countries with an 813 final and three band quad. (photo courtesy WVDXC)

Fred, K1EFI.

by VP2GDW (ex-VR1B, British Phoenix Is). Too bad they can't be a little more generous with the alphabet for positive identification! Further word from the West Gulf DX Bulletin identifies VR1B as VK3IB and says that he will be on Tarawa for two years. He spent a bit of time operating as VK3IB/VR1. VK2EG handles the QSL's and takes his log over the air. VR1B may be found around 14080 1100 to 1300 GMT.

Some ham shaking news, DX-wise, shapes up from NEPAL. We hear that 9N1AA, 9N1AB, 9N1AC and 9N1AD have been licensed. They hope to be on soon.

As is now generally known the ban has been lifted on Ceylonese stations and one of the most active, 4S7FJ, is heard regularly. Ban lifted March 29th.

KØDQI advises us that he is handling QSL's for FP8AP. JT1AB cards go via CAV, Box 69, Prague.

Ken, W7VCB, left for a two year stay in Liberia in March where he will work as a pilot for Letourneau of Liberia Ltd. He hopes to be on 40 and 20 CW with a KW and other bands with 75 watts phone and CW. if possible he will try to get over to FD8 and CR5 during his stay. He will be glad to put Liberia on the air with SSB if such equipment might be loaned or donated. QTH is Ken Bale, LeTourneau Liberia Ltd. Roberts Field, Liberia. QSL's will be handled by W7PHO.

George, VQ4AQ, and Leny, ex-VQ8CB, have a friend who runs around the Indian Ocean in a motor vessel and who is interested in ham radio and shall probably receive a ham ticket very shortly. If things work out we shall hear him from such places as Agalega Island, St. Brandes Island, Aldabra and others. Around July 1960 VQ4AQ gets a six month vacation and hopes to operate from VQ9 and Aldabra.

The OK7HZ/ZA expedition has now left Albania for the next spot. In view of the considerable ballyhoo preceeding this trip the ZA operation, DX-wise, was a dismal flop with only a few W stations being contacted. As may be expected there was much consternation and frustration among the hundreds who spent long hours calling him to no avail. Most OK7HZ/ZA activity was confined to lengthy contacts with OK stations. Undoubtedly George had been thoroughly briefed by OK1MB regarding DX work but his lack of interest in working DX was apparent. While OK7HZ is a slow CW man this mode of transmission was never tried and SSB was used throughout his stay. We, of course, cannot question their right to operate as they wish and we also can guess that their photography an other work connected with the trip is formidable. We can only hope that OK7HZ will become more aware of

Marty Schwartz, W2EPZ, agitates the ether waves at Floral Park, New York.

his importance to the DX fraternity and make a corresponding effort to provide more contacts on CW and SSB at furture exotic stops. It is also certain that if CW were tried the resulting practice he would receive, in the form of thousands of calls, his code speed would reach satisfactory limits in a very short period.

Latest word, at this time, advises us that the Socorro Island trip will leave Mexico the 20th of June. Five days will be spent on the Island signing XE4B on CW, AM, SSB and RTTY, Maritime-Mobile operation will be in effect during the voyage to and from the island. Ops will be XE1XX, XE1CV, XE1BI, XE1AAT and possibly XE1AE.

IFNI chances now look extremely hopeful. A group headed by EA2CA were due to operate from there from June 16th to 20th using W2KUW's KWM-1. Another expedition to IFNI is due to take place between July 13th and July 26th. Participants are EA3GF and EA3IS who plan all band operation with CW, AM and SSB.

GM3ITN will be on from the island of Ailsa Craig, otherwise known as 'Paddy's milestone' for ten days starting July 20th. He will sign GB2AC on 7, 14 and 21 Mcs. phone and CW. This is a small island between GM and GI. We think it doubtful that it will be given 'new country' status but better not pass it up anyway...

DL9PF, recently LX3PF, indicated he would be on from Andorra from July 20th to 31st if PX license is granted.

W4GQM/KS4 spent some time on Swan island and went QRT about June 6th.

Another DX pedition to the Aaland Islands will take place between July 3rd and 10th with OH1SS/Ø and OH1RX/Ø doing the honors. CW frequencies will be 14080 and 21080. Phone times and frequencies will be given via CW. 120 watts will be run to a long wire antenna. Please call 10 kc up.

Further FP8 activity is promised by K4RSD who plans a trip to St. Pierre around the second or third week in July with a Viking II and SX100. Roly, VO1BD writes that he will be on as FP8AY around the first week of August.

FR7ZD runs 25 watts to a 807 on 14178 and appears between 1200 and 1500 GMT, mostly on weekends. ZS2KW and ZS2HI may help in obtaining contact.

QSL's for KG1AQ should go via W6UED only.

VQ4AQ writes that there will be a station operating under the call VQ8AP/B (St. Brandon Island Group) Carajos. He will be there for three weeks in August and run 25 watts. Efforts are also being made to have a commercial operator, who travels about the islands in a boat, to get his ham ticket and get on from Aldabra, Agalegoa, St. Brandon etc. This op has shown interest in the idea and has appeared on the ham bands with his commercial call.

SM5DW, Rolf Andersson, of Enskede, Stockholm, runs 500 watts.

W3PGB says the advent of 9A1AR on the air is expected momentarily!

W4FNR completed WAC on 6 meters April 25th with a ZL2DS QSO!

Dili, Port, Timor, May 3, 1959

Dear Bill, W7PHO

I know that you have a lot of reasons to be angry with my silence. But, in a few words, I go to describe you the cause of that absence. The Postmaster General is going to Lisbon and I have taken his place in the meantime. The office is fighting a terrific shortage of

staff and so a big lot of work is colapsed on my back. Afterwards I have got a bad infection in my two ears that has occasioned a sickly state nearly permanent which has taken out the remainder of my aptness, a little affected already by the long stay in a hot climate. When the W friends have advised me of the remittance of a generator I have made a bad mistake because I have understood the generator was for AC supply. So, I have acted without consideration and have dismantled my rig in order to change it for that kind of supply. After the arrival of the generator I have noted that it was for 6 volts DC and the sickness has not permit me to reassemble the rig. Notwithstanding I go to try build a little transmitter for CW only and with some sacrifice, make a few QSO's with the W boys in payment of the kindness always received and never forgotten. I am thinking go to Lisbon where, during my holidays will be possible come into a hospital and receive a good and convenient treatment. Later on, from there and after a balance of my pecuniary resources I think looking for a not expensive power equipment transmitter and receiver, new or in second hand for my new stay in Timor. I suppose you will be ready and help me in this matter for which I will write you from Lisbon. The QSL cards of all the W boys that I have in delay will be sent by air mail. Thanking you and the fellows for the generator and escuse my lack of attention.

Yours very truly, Ruy/CR1ØAA

Via the West Gulf Bulletin, Lee WØAIW, advises that he and VQ4ERR plan to arrive in the Seychelles on August 21st for a ten day to two week stay. Times and frequencies will be given later. Lee also says that WØUQV will be operating from San Marino on July 11, 12 and 13th and from Monaco July 18, 19 and 20th after which he will ship the equipment to Lee for use at VQ9. WØUQV plans CW and SSB operation Only.

YASME FOUNDATION

As this is read the Yasme Foundation should be firmly established. This has been set-up through the efforts of Ed Stanley, W4QDZ (3006 Fair Oaks, Tampa 11, Fla.), who is acting as it's business manager. It's object is to get Danny underway again and render contributions as tax deductable. Substantial pledges have been made and it looks certain that Danny will 'ride again'. He will not be alone on future trips but will have as many as three others, all radio ops, with him. One will be ZL1AV, who is presently staying with me(KV4AA). Another will be a well known W DX'er and the third party may be an English friend of Danny's who is an expert motor mechanic etc. This will make for a truly international DX'pedition for which ham tickets may be obtained for operation in nearly all areas. Also, instead of sail, with it's various complexities, a twin engined motor sailer (deisel) is being seriously considered. As this is written, Danny is in Houston, Texas, and will go on to attend the ARRL Convention in Galveston, June 20th. It is probable that Danny will visit the West Coast, under available funds, and hopes invitations will be forth coming from the various West Coast Clubs. Should any organizations wish Danny to give talks, please so inform either W4QDZ or KV4AA.

XE4B trip was again delayed somewhat and the boys were due to be QRV on June 27th.

K4RSD advises that he will be on with a FP8 call from August 1st to 8th. Will be SSB if he can obtain gear.

ZC4CS (Cyprus) will be looking for 14045 at 1400 GMT, long path, when conditions permit.

From PAØLOU, we are advised that EA9DE (Ifni) did not get permission to operate from Rio de Oro so may have extended his Ifni stay to

Continued on page 36

CALAMITY KNOCKS!

Of extreme interest to all hams, W/Ks, DLs, Gs, ZLs and VKs, it matters little, all will be vitally interested - is the proposal of the VK government to submit to the Geneva Conference the following suggested band restrictions. These are the amounts it is proposed to lop off each band:

80 meters	100kcs.
40 meters	50kcs.
20 meters	100kcs.
5 meters	2 megs.

The proposed 20 meter reduction is from the top end. That is, if the government gets its way, the hams will loose the portion from 14250 kcs to 14350kcs. And, to add insult to injury, I have it on good authority that *they will fill this portion with code stations!* Imagine what 20 meter operation will be like with 100kcs of the band wide open to code stations!

THE VK HAMS FIGHT...

Needless to say the VK hams are fighting the proposal tooth and nail. Champion of the cause, among others, is Member of Parliament VK2KB, the Hon. Mr. Fairhill. In a VK wide all band network on Sunday the 17th of May Mr. Fairhill ap- for support. VK hams are asked to write to their individual members of parliament and otherwise do all they can to block this proposal. The VK hams have so far been successful in having this matter brought up in parliament and I understand several lively debates have followed.

HOW WE MAY HELP...

Naturally we are not able to interfere in the internal affairs on another country. We can however give our moral support and we may write to The Wireless Institute of Australia. We may also look to our own countries and do what we can to be sure that we don't follow the lead set by the VK Government.

NEW ZEALAND PROPOSALS...

ZL hams are lucky in that they received the upmost cooperation from the ZL Government and I understand that the ZL Government proposal to be submitted at Geneva is that the ZL ham bands remain as they are at present.

****

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Choke, 10hy 400ma 3000v test	6.50
Choke, Airpax, 10hy, 25%-10%, 48 ohm DC res. 1800v test	5.00
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Transformer, 115v pri., 172-245v sec.	5.00
Transformer, 115v pri., G.E. 860v sec. 230ma	3.75
Transformer, 115v pri., 525vct sec. Todd No. 1387	6.00

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Amperex ELECTRONIC CORPORATION
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Single Sideband from Page 18

section filter I now built in only a single section of choke input. The modulator power supply transformer had a lower DC resistance so I made a swap here. A brand new filter choke with a low DC resistance was used because the others had not been very good anyhow. Then, all the capacity I could find in the place was wired across the output of the supply - some 50 odd microfarads in all, and the rig fired up. The results? Just as you expected, wonderful! As the XYL will readily assert. I spent a lot of time 'playing' with that supply and at the risk of appearing like an evangalist propounding a new faith, I will set forth my conclusions.

(a) On voice modulation, the condensers give up stored energy on the peaks, charging in-between times. But on a tone your linear peak output may be somewhat lower for the voltage is being filched away before the condensers have had a chance to have a good 'tuck-in'.

(b) The DC resistance of the transformers and chokes will cause a voltage drop that will increase with current drawn. If you consider the resistance of these components as being resistors in series with the B plus supply it will become apparent that their values should be as low as possible.

(c) On voice, hum from the single section supply is not apparent. This is because the output voltage is actually being supplied by the condensers which can only deliver pure DC. Only when the demand empties the condensers and begins to draw upon the power supply itself is hum likely to rear its ugly head.

(d) Last, but by no means least, if your final has a large standing plate current the demand on your supply will be less exacting.

The moral to this story is use lots of C in your power supply and as little R as possible.

****

Continued from page 8

radio sextant, which has been succeeded by other more advanced models. The SRN-4 is an outgrowth of this continuing research program.

As to how any radio sextant operates, Dr. Marner explained the amplitude of the sun or moon raditation fluctuates in the same fashion as the Johnson noise from a resistor, making detection of the weak signal difficult. In Collins' radio sextants the antenna scans a circle around the sun or moon's rim. If the antenna is pointed directly at the sun or moon, the received signal will show no modulation at the scanning frequency, but if the antenna is displaced slghtly, the moon or sun signal will be modulated. Phase-sensitive detectors derive error voltages which are used to make the antenna track the sun or moon.

When asked about the possibilities of using other stars for navigation, the Collins scientist said that other stars besides the sun undoubtedly radiate in much the same manner as does the sun and moon, but they are so far away that they have never been detected. Radio stars, the mysterious localized sources of extraterrestial radio waves, are extremely weak in the microwave region, and high resolving power is difficult to achieve with the longer wave lengths at which they radiate more strongly. The use of such sources for navigation purposes is presently very difficult to achieve with practical size receiving equipment.

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TCS NAVY SPEAKER

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2. 50 Megacycle Picnic gathering . . . held monthly through the summer in various Bay Area parks and picnic grounds. Great family outing for 50 meg. men in the bay area. Call Gordon, K6DOQ, KE 2-2931, Oakland, or write 1664 Miami Court, Oakland 2 for further info. Held on Sun.

EVERY DAY is a *calendar event* day at ROBERT'S and these values are typical—

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VHF Record from page 15

July 4. Phil was watching six as skip over the mid west got shorter. At 1545 CST he heard St. Louis stations working Chicago and Milwaukee stations on six. This, he said to himself, means that two is open over a path 1400 miles long with that same mid point, between Chicago and St. Louis. He got on six and transmitted simultaneously on 144 and raised a VE3, then two more VE3's on E skip on two meters! Phil notes that on the afternoon of July 6, 144 should have been open between Arizona and Tennessee or some similar path, because he was working Sherman and Dallas Texas on six meter skip, over a 250 mile Es path. One more VHF note, HR2DK was heard working 5's along the gulf coast July 6, he is on 50.220 so go get him gang!

****

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212 Sombrio Dr. Santa Fe, N. Mex.

ZERO BEAT from page 11

pack to San Diego where my wife was waiting at the plane with a BIG CLUB in her hand!

A few passing remarks on my observations: all cities have smog, we need a universal language and a universal money exchange. All tour buses look alike when 30 are lined up and you try to get back aboard yours. Americans spend too much money in Europe and keep the prices up. All Europeans keep a small flag pinned to their coat showing what language they speak. Finally, it will probably be another 20 years before I will be able to get out of the house again. Bear with me... 73 de W6BLZ, Ed...Hooray! Let's go to Europe again.

****

The Federal Communications Commission has issued a notice relative to the status of the Amateur Extra class license. The FCC has made no specific proposal, but they invite comments as to how more interest can be instilled into the obtaining of an Amateur Extra class license. In short they want comments prior to Sept. 15th. as to what can be done to make the Extra class ticket more desirable. Send them your ideas on privileges for the Extras.

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Bodine NCH-33 Hysteresis Synchronous. 115v, 60 cy, .45A. 600/1200 RPM. 4¼" dia by 5½" long. Rear shaft: ⅞" long. Front shaft: 1½" long and ground for 7½ and 15 ips.....**$29.50**
Same as above, but shaft ground for 3¾ and 7½ ips **$34.50**

Bodine NCI-33 INDUCTION DRIVE MOTOR, same mechanical specifications as above, except 540/1080 RPM. Shaft ground for 7½ and 15 ips **$17.50**
Same, for 3¾ and 7½ ips.....**$22.50**
PLUS .....**$ 1.50**
per motor for postage and handling.
5 MFD starting capacitor.....**$2.00**

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HOOTOWLS from page 16

For a ground system a small amount of copper wire was used, 300 miles, buried into the mountain, Hi! The xmitter itself consists of two 500 KVA class 'C' amplifiers that can run independent or together for maximum power and operating around 15kc. The rig was manufactured by RCA at a cost of two million dollars. In case your interested in duplicating it for your DX rig, you might find a surplus tube for the final at about fl15,000. Inside the xmitter building Al, W7BKV and myself really fired the questions. We did not hear a word of CW. Except for the plate meters swinging you would not know the rig was on air. Our first shocking experience of the 'monsters' vast hunger was on our visit to the standby power station, out in the yard where the sub stations were buzzing away at 18 wpm (xmitter ½ mile away). It sounded as tho their insides were about to split. Located in the center of the power house is a huge 3500 hp deisel motor generator of a 16 cylinder V-type engine.

We climbed back into our car and fired up our 10 watt mobile with its meter kicking 200v at about 60 mils dreaming of what we could do with a rig running 4400 volts at 125 amps at just half power, hi!

For amateurs and families planning to visit Seattle, write to Jim Creek for a tour. Don't miss it. You'll never believe what you see. Write: U.S. Naval Radio Station 'T', Jim Creek, Oso, Wash.

****

222.000 MEGACYCLES . . .
KH6UK-W6NLZ . . . 2540 MILES.

When Tom and Johnnie worked the span over the pacific from the islands to the Pacific coast word of the feat spread around the world in record time. Imagine . . . ground wave on a VHF band over a path 1/10th the way around the world! And then . . . when the same two pioneers of the VHF-UHF spectrum announced in the VHF column of WRA they would try to duplicate the feat on 220 . . . many of the original scoffers scoffed once again. But . . . as you can see in Bob's column this issue . . . they did it . . and with better results than on 144. And what's in store in the future over this path . . .perhaps the most famous 2540 mile path in the world 432 next says John . . . and now we wonder . . . how many are going to scoff this time?

And . . . speaking of scoffing . . . there were not a few who scoffed at my intentions of putting some power on the air on 50 megacycles in an erea where all television is fringe area . . . and worst of all . . . people watch stations on every channel but channel 12, on a regular basis. And yet the strongest of these channels puts less than 250 microvolts at most antenna terminals . . . and channel 2 is closer to 40 mv in most homes. For the un-initiated . . . this is barely enough to lock the frame bar in most dilapidated receivers. But I did it . . . first a 522 modified for six . . . then a 6N2 (TVI anyone?) . . . and now a 4E27A designed to run 1/4 legal power. And I get fewer reports of complaints than fellows I know running 10 watt rigs in San Francisco . . . right under the channel two transmitting antenna. Interested in how I do it? It's really very simple . . . and you can see the system for yourself by dropping by the store anytime. Always gathering of fellow VHF'ers in the store these days . . . and you DC banders sholdn't feel left out . . . the whole store is filled with gear and parts designed for low frequency use. Saturday's are especially big days at Bill's . . . when the gang gathers from points near and far. Drop out . . . and I'll buy you a cup of coffee while we discuss the latest ham doings.

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DX REPORT from page 30

June 26th.

We regret to record the passing of PAØGN---.

FP8BC, active in June, was W1YIS.

QSL's for VK9RO go to Rob at at Posts and Telegraph, Port Moresby, Papua.

LA6GE/P will be running 20 watts SSB from Jan Mayen for 8 to 10 days starting July 3rd. LA6VC will act as MC.

ZL4JA (VS5JA) now is in Iran and will do his best to get on the air.

Returning home from his stays at TI9SB, PJ5AC, PZ1MR, FY7YF and VP3RO, Martin VE3MR, was greeted by over 2000 letters and QSL cards. 5500 contacts were made as follows: 2,300 from TI9SB/TI9CW. 1,200 from PZ1MR. 600 from FY7YF. 700 from VP3RO and 700 from PJ5AC. All of these, except 1,200 from TI9CW, were SSB QSO's. On QSL's most TI9SB cards have been mailed. All others should go out in July. All Cocos cards go via TI9HP. All others covering SSB contacts go via VE3MR. Cards for CW QSO's with FY7YF go via W2FXA.

G3LKZ plans expedition to Monaco, with G3ATU and G3HCZ, August 23rd to 31st.

THE SCANDINAVIAN ACTIVITY CONTEST

This is a new contest in which outside stations will try to contact as many Scandinavian, on all bands, as possible.

This years contest will be handled by the Finnish SRAL, Box 306, Helsinki. The CW period will take place between September 19th at 1500 GMT and September 20th at 1800 GMT. The Phone period will be between September 26th at 1500 GMT to September 27th at 1800 GMT. Eight multipliers are possible on each band and consist of the following: LA, LA/P, OH, OHØ, OX, OY, OZ and SM/SL. Serial number exchanges are of the familiar type starting with 579001/59001 etc. One point is given for each complete exchange.

Certificates will be awarded to the top two scorers in each country for phone and CW. Also to the two top scorers in each W district. Logs should be mailed to SRAL and postmarked not later than Oct. 15, 1959. In 1960 this contest will be handled by Swedens SSA, in 1961 by Norways NRRL and in 1962 by Denmarks EDR etc. This activity should aid many to obtain such Certificates as the OHA, OZCCA, WALA and WASM.

GOLD STRIKE from page 22

order: Manual of Military Standard Electronic Circuits, MIL-STD-439 (AER) and include an additional dollar with your remittance.

To get the bi-weekly listings of all available publications, simply ask them in your letter to place your name on their mailing list for regular receipt of 'Selected United States Government Publications'. Each list includes an order blank and an address label on which you enter your name and address, check off the publications you want, enclose your check and mail it. That's all!

With just the publications I've used here for examples, your radio data will commence to rival that of M.I.T.! And, it will do it in such a way that you will need only to know Ohm's Law (you can look it up, if you don't!), understand simple schematics, look at pictures and read familiar ham words. Where else can you get so much for so little?

The books I've described are a mere sampling. Thousands of others are available and almost every list describes a number of Radio/electronic publications...some for as little as fifteen or twenty-five cents but loaded with informative 'nuggets'. See what I mean when I say GOLD STRIKE?

Adios, 73 and good reading!

****

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6 VOLT EICOR DYNAMOTOR

Input 5.5 vdc. Output 600 vdc @ 175ma. NEW $6.95

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Tool Boxes from $2.00
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See Pappy Dow for Mica Condensers, Resistors, Allen Bradley Pots, Meters, Insulators, Selenium Rectifiers, Tubes, Oil Condensers, and many other items.

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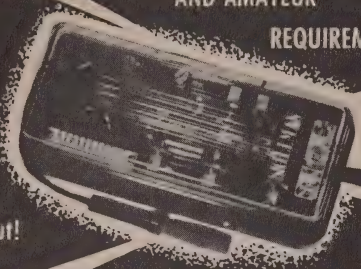

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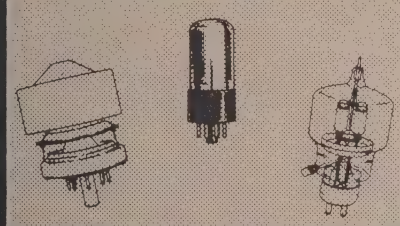

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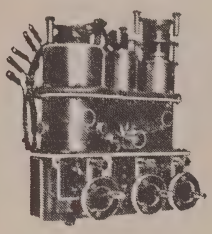

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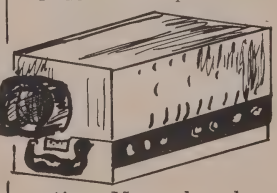

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ATTENTION ALL AMATEURS

It might be of interest to know that the Federal Communications Commission at a regular meeting on May 13th. complimented the Amateurs operating the Special Events Station K6USA for a job well done.

At the request of acting Chairman Rosel Hyde, whom many will recall honored us by attending the SW Division Convention at Long Beach in 1957, your Director gave a full report on the operation of K6USA.

My report stated that we made 9874 contacts exclusive of 132 made while Mobile-Railroad and those made on RTTY. We contacted 94 different call sign prefixes, every state in the Union and as of that date had received some 4200 QSL cards, all of which had been replied to thanks to my good XYL Marge.

Chairman Hyde stated that we had done a wonderful job of public relations and World Wide good will based on reports received from many sources. Each one of the Commissioners, and Bill Grenfell/W4GF who acted as our coordinator in Washington were given one of the K6USA souvenier brief cases filled with information on K6USA.

In thanking the Commission for the official commendation and expression of appreciation for our efforts, I replied that it was only possible by wonderful team-work--and brother what a team.

My team, it was explained consisted of President Eisenhower who signed our QSL cards; the US Senate and House of Representatives who passed a special joint bill permitting FCC to waive certain requirements of the Communications act so that foreign Amateurs could operate K6USA; the State Department who arranged with six Nations to permit the exchange of third party traffic; the White House staff and C. Douglas Dillon Assistant Secretary of State who officially opened CCIR, and K6USA with the memorable contact at 0200 GMT April 2nd (6 PM PST April 1st); the International Telecommunications Union; the International Consultative Committee on Radio (CCIR); the Biltmore Hotel staff; Stoddart Aircraft Radio Company; the Manufacturers of Amateur equipment, their dealers and distributors that gave us transmitters, receivers, head-sets, keys, mikes, and anything we could think of; the 42 Ham delegates of CCIR that supported our own group of operators which numbered around 400 from all over the SW Division and the AF MARS Western Tech. Net who furnished operators from the 11 Western States; and a hard working Amateur Committee, Herb Hoover Jr/W6ZH our Honorary Chairman, Merrill Swan/W6AEE, Howard Shepherd Jr/W6QJW my Vice-Chairman, Ray Halkney/W6BUD our Chief Operator and Joe Boyer W6UYH our Chief Engineer and antenna expert.

To everyone who participated in the operation, or by making a contact. THANKS. Hope to see you at the SW Convention in Pasadena to say this in person and show you the results of our operation.

73 Ray W6MLZ

Ray Meyers, Director
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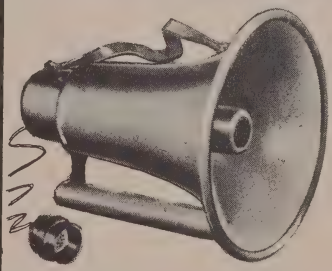

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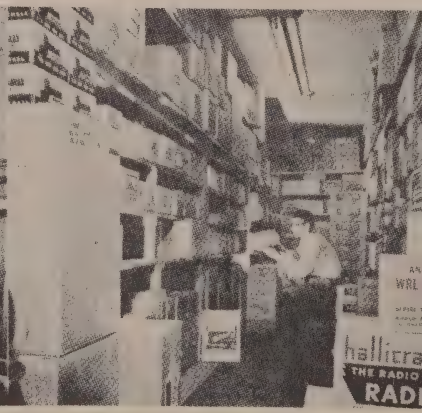

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FOR SALE: NC-57 receiver with Tapetone 6 meter converter. A-1 shape $80. Harry Gumm K6MDD, 9603 Barkerville, Whittier. OX 3-1459.

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TRANSFORMERS AND CHOKES: Over 300 new overstock units such as: 7.5v @ 21A $15. chokes: 3hy @ 800ma 5500v $5. 750ct @ 150ma $1.50. 1200vct @ 90ma $1.50. scope: 1200, 1800, 2000, @ 10ma $1. Many 6.3v xfmrs from one to 96 amps @ $1. up. Most are to mil-t-27 specs. Call me for ur needs. Dennis, 4221 Wawona St. L.A. 65.

FOR SALE: BC 348Q receiver, matching military speaker. AC power supply original generator, instruction manual. Excellent condition. Only $60. G. Flynn, WØMHV, 3335 Summit St. Omaha 12, Nebraska.

SIX METER Radiotelephones. Link model MN-5 converted to 90 watts input. Sensitive receiver. Complete with crystals, control box, power supply, all cables, and instruction manual $60. Unconverted model $30. Phone VErmont 7-4895.

FOR SALE: Ten and 15 meter beams. 38 ft. rotating tower. Prop-pitch motor, transformer and selsyns $65. High-Q mobile coil, new $10. Al Lee W6KQI, 2923 Greetop St. Lakewood, Calif. HArrison 9-2197.

MOBILEERS: Elmac PMR-7 All-band receiver complete with 12 volt power supply; mobile mast; all-band tuning coil; 5' stainless whip, excellent cond. Still installed in my car. $100. takes everything. Call Lew Goodwin at WEbster 9-1335 or PLeasant 3-3321. 1036 Point View St. L.A. 35, Calif.

FOR SALE: 6v battery with rack. 6v battery charger. Sams TV photofacts Lysco xmtrs. 2M converter (Gonset) Super 6 converter (Gonset) 0-500 microamp meter. 28v, 1KW dynamotor. HQ-129X rcvr with speaker. All first class cond. Corky Kirk, W6ORS 1833 So. Vega Alhambra. AT 9-1272.

FOR SALE: Hallicrafters SX100 with speaker, Elmac A54 (carbon mike), K6YTL. ED 9-6717.

FOR SALE: ARC-5 40 meter transmitter. All converted for 75 watts novice use. With crystal controlled adapter and crystal for 7170. Perfect condition $10. (Less power supply) 15 meter folded dipole with 300 ohm line and 60 feet lead in. Perfect match for 21-150. $5. Heavy duty power supply, will work with ARC-5, T12 or most transmitters that don't include power supply $10. Sheldon Kurtzman, K6RMM, 5363 Geyser Ave. Tarzana, Calif.

Hi-power 2m final-Commercial Silver plated 800 watts to pr of 4-125A. Gil Severns, W6QR, Hemet, Calif.

PANORAMIC PANADAPTER 455kc-I.F. like new $85. Late serial 75A3 receiver excellent cond. $375. DX Hound 20M short beam, boxed new $35. New R-28 2 meter receiver $15. BC659 $15. Gonset G66B receiver $160. Carter Dyno 600v 400 mil $25. Home brew transistor power supply 600v 350 mils. Perfect condition $40. 600-D electro voice low impedance mike $15. National XCU 50 Xtal Calb. $20. Murray Gellman, 1268 E. 12th. St. Brooklyn 30, N.Y.

FOR SALE: Instructograph code machine, with manual, all ten tapes good condition some never used $20. Also small surplus transmitter Xtal controlled 40-80 meters in rack with power supply, ready to load up $25. Harry Cochran, K6GQZ, 15116 Gundry Ave. ME 0-5174. Paramount, Calif.

FOR SALE: DX-100 like new condition $185. SX-100 in better than new condition (tubes gently aged) for $210. K6QXK, CItrus 3-1425, 1030 Oberlin Dr. Glendale, Calif.

QSL's - SWL's Samples .05¢ Nicholas & Son Printery. P. O. Box 11184, Phoenix, Arizona. W7RBF Prints.

FOR SALE: DX-100 Transmitter. Absolutely perfect, little used $150. Call SY 2-2617, or see at HUnter 2-2135, Camarillo.

FOR SALE: 2 mtr. Transmitter, 100w input, phone or CW, air cooled 829-B final, parallel rods, 2E26 driver, hairpin tank, efficiency 75% crystal ctl., all inductive cplg., TVI proofed, double shielding, RF sec. in cabinet, power supply & 807s modulator on separate chassis, uses xtal mike. Has worked DX including Parker, Ariz: from the flats of LA. Engineered and built by an Electronic Engineer. (Former FCC R.I.) First $100. cash takes this transmitter. Have other 2 mtr. items, like 30 el. beam, cascode RF pre-amp, crystal ctl. converter (dual 2 & 10 mtr.) crystal mike, etc. After 6 PM call ORchard 1-4201 or AXminster 4-1837 for appointment. Cully, W6TYU, 5709 Deane Ave. LA 43, Calif.

SELLING OUT: HRO 5TA1 Receiver. A, B,C,D, coils, have to see to appreciate $100. Gonset tunable converter: 6-10-15 meters, 110 volt model $30. Viking I Transmitter, A-1 condition, 829B final $75. W6DLY, Guy Martin, HIllcrest 6-5427

FOR TRADE: BC610E - BC614E speach amp. ART13, w/AC power supply for commercial gear or? K6AXC, 15425 Dumart, Norwalk.

FOR SALE: Morrow mobile receiver MBR-5 and power supply $135. AF-67 xmtr with power supply (AC) $135. Call EL 8-0831. W6GMC.

FOR SALE: Communicator III two meters with 5 crystals, microphone, $225. CT-12 Hastings 12 volt FM car tuner with 8" Altec speaker, antenna, unused $75. Viking 122 VFO $20. Vibroplex Blue Racer with case $15. B&W 380 TR switch, $12. B&W 75 ohm Lo Pass $10. Master Mobile 2495 6 volt match master with field strength meter $15. 666 All-Bander coil $8. 232 XSSC mount $8. Telex Monoset $5. All practically new, unused. SY 7-0153. K6BSE.

Collins 75A1 Receiver with loud speaker and Bill Orr improvements. 212 Countries have been racked up on this receiver and it is in perfect condition. $275. Dick Reimer, W6OSU ORchard 2-2970. 7811 Agnew Ave. L.A. 45.

MUST SELL MAKE ME AN OFFER LIKE NEW Collins KWM-1. AC supply DC supply, mobile mount, console speaker, KWS-1, 32V-3 $400. Communicator 3 2 meter, $180. Gonset 2 and 6 meter VFO $50. 75-A2 $300. National NC109 and speaker $150. Central Electronics MM-2 $90. Also have a beautiful Collins deluxe 75-A4 speaker with phone patch, Ratiometer, Beam Ind. control switches etc. $100. Might trade. Want CW filter for 75A-4. W7HCJ, 308 N. Locust, Spokane 62, Washington. Phone WAlnut 6-4406.

SELLING OUT: DX-40 with VF-1 $80. SX-28 with matching speaker $90. Gonset 2 meter Communicator II complete with 6 xtals. BC-455A (Q5'er) fully converted $10. DM-65A dynamotor 12v input 440v at 400a output $5. K6PPB. AT 1-8377, if no answer CL 6-2569.

FOR SALE: B & W grid dip osc. $30. W6GMC. EL 8-0831.

HAM MEETINGS AND HAMFEST SPEAKER

Looking for a new way to put some spruce into your club meeting? What you need on these hot summer meetings is a little controversy. Bob Cooper, K6EDX, associate editor of WRA is just the fellow to inject such venom into your meetings. Bob is available to speak at club meetings and 'fests throughout the summer and fall on such timely topics as the loss of our VHF frequencies to commercial interests and what the Geneva conference holds in store for amateur low frequencies. A post card or message to K6EDX, 820 Tully Road, Modesto (Phone LA 3-4257) will get you more information.

SEVEN IN LINE from page 26

ence dipole. On several occasions I had the chance to run checks on a comparative basis with W6NDP, also in town. Kenn was using a twin four setup at about the same height and our receiver sensitivity's were similar in that we were both troubled with bad QRN from leaking dust covered power insulators. Allowing for differences in transmitter power we had fairly similar results in the 500-1200 mile range on E skip, but let the skip shorten up (like 400 miles) or let it lengthen out (such as 1500 miles on single hop E skip) and the seven in line pulled way out in front. On ground wave, it was far superior beyond 50 miles undoubtedly due to the lower angle advantages.

****

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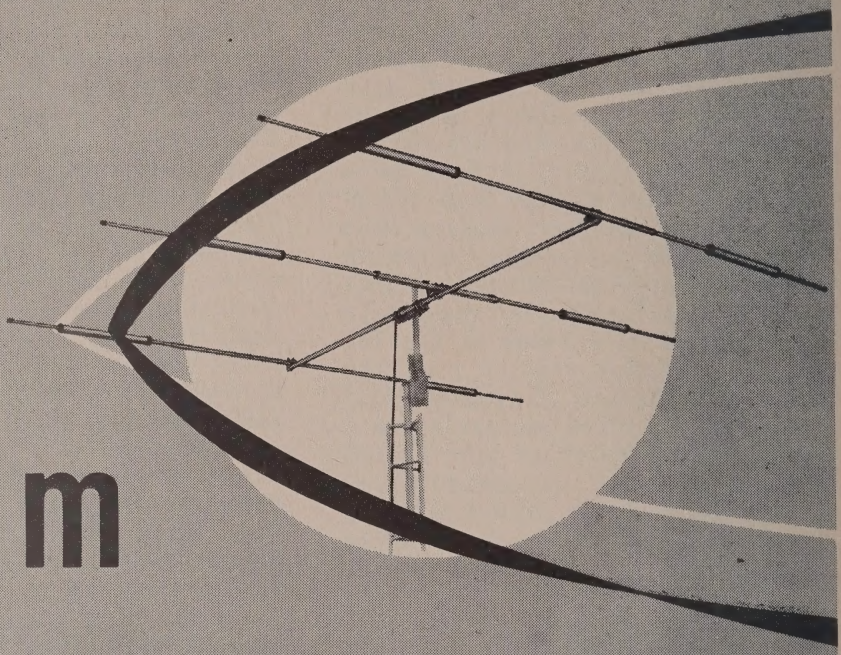

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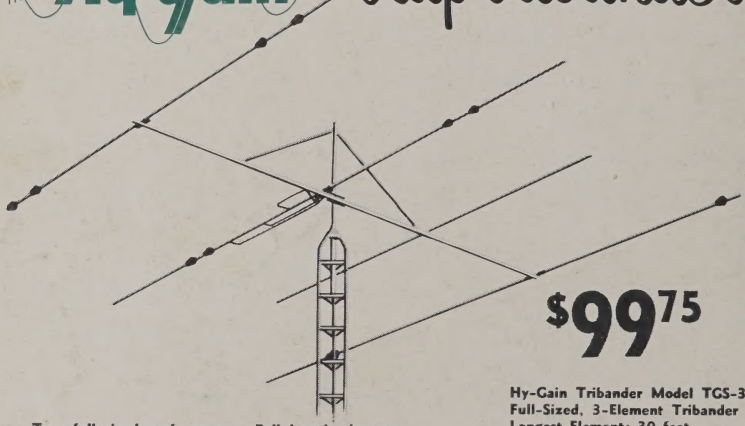

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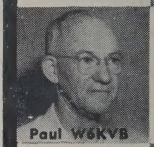

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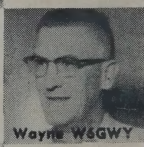

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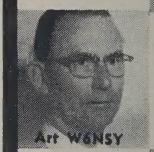

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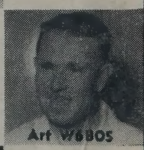

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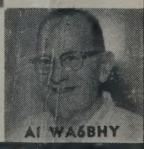

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